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ABSTRACT

Contents of this issue are as follows: "A Study of the Use of the Lozanov Method of Accelerated Learning in a Naval Science Classroom" by E.E. Peterson; "Initial Approach to Relaxation and Subsequent Relaxation Treatment Effectiveness" by Lawrence Mohr; "Summary Statement on Counseling-Learning and Community Language Learning" by Earl W. Stevick; "The Effect of Background Music Volume Relative to Speaking Volume, Previous List Exposure and Sex of Subject on Learning Rare English Words" by D.H. Schuster and Rebecca Pansegrau; "Accelerated Learning: An Experimental Evaluation of Suggestive-Accelerative Learning and Teaching as a Method of Teaching Vocational Agriculture" by Randy G. Walters; "The Interaction of Trait Anxiety and Muscle Tension in Learning" by D.J. Martin and D.H. Schuster; "Student Attitudes Toward Music Used as an Integral Part of Remedial Reading Instruction Based on the Lozanov Methods" by John W. Rhodes; and "Abstracts of Articles Published in the Bulgarian Technical Journal." (SW)

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THE JOURNAL OF SUGGESTIVE-ACCELERATIVE LEARNING AND TEACHING

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A study of the use of the Lozanov method of accelerated learning in a naval science classroom.

E. E. Peterson,

Iowa State University

Abstract

A relatively new training technology of accelerated learning (Lozanov Method) proves effective as a Navy ROTC instructor harnesses the powers of suggestion and with it increases learning speed and retention. The instructor taught a Navy ROTC college class of two sections in two different ways in one quarter. The control section was taught the instructor's usual way. The experimental section was taught with suggestive, accelerative techniques in one half the usual time each week. On first mid-term exam scores before the experiment started, the two sections had almost identical scores, demonstrating the equivalence of the two groups on prior ability. The final exam scores for the two groups again were almost identical, showing that the experimental group had learned as much as the control group but in one half its time.

Introduction

In a spirit of fun yet under the awesome pretext of a graduate level creative component, this paper is written. It involves a major undertaking which took place during the winter quarter of 1977. The purpose of this paper is, therefore, to report on that major project, spelling out the mechanical, technical and emotional aspects of the project.

The project centered around the Lozanov method of suggestive learning. While taking a psychology class under the tutelage of Dr. Donald Schuster, I was exposed to a new method of teaching, which seemed at the time to be unusually productive. It seemed to hold great potential for the betterment of the education process, and in particular my students. The method purported to be a good, strong tool of learning at an accelerated pace. This initial exposure was unusually enticing. At the time, I was also on the faculty at Iowa State University. My particular teaching responsibilities revolved around the Navy ROTC Midshipmen in a somewhat technical, three-credit course concerning Naval Weapons Systems. I had just finished teaching the first quarter of the two-quarter sequence, and knew that the second half would be just as terrible, if not more boring, difficult, and uninteresting for me and the students. We just weren't getting much out of the class. Absenteeism was high, interest low. It was at this point that the ray of hope, found in this new Lozanov method, seemed exciting. With the permission of Dr. Schuster, and with the help of his how-to-do-it handbook, *Suggestive, Accelerative Learning and Teaching: A Manual of Classroom Procedures Based on the Lozanov Method* (1976), I began to map strategy, or in military terms, a 'plan of attack.'

Background. Highlights of the method are: The base upon which this method rests was developed by Dr. George Lozanov. He lives and works at the Suggestology Research Institute, Sofia, Bulgaria. Dr. Lozanov has put together what he calls a highly effective learning procedure. It is often called suggestology. It is fairly new to the United States and is being used only in limited amounts and most of this is research-related. In many of his pilot studies, Dr. Lozanov was able to

increase learning ratios from five to one or more. In recent studies done in this country by Bordon and Schuster (1972), language training has been speeded up by a factor of three to one.

As the student views it, the method can be divided into three phases: preliminary preparations, presentation of the material, and practice of the material. A brief discussion of each now follows:

The preliminary phase starts the learning session. The instructor creates a favorable atmosphere for learning. This is done before any material is presented. The instructor does this by suggestion that learning will be easy and that the students are going to learn faster and more efficiently than they have before. At this point, I also reinforce the idea that learning is fun, and that each sudent is capable of mastering the material to be presented.

By creating a suggestive, positive atmosphere, the Lozanov method uses what is called non-specific mental reactivity of the mind. This allows the 90% of the human mind which is normally not used to help in the learning process. There are two major aspects to utilizing this non-specific mental reactivity. First are the authoritativeness of the instructor and the infantilization of the student. Secondly, factors such as double planeness of the instructor, intonation of the instructor's voice, the rhythm of his speaking, and the pseudopassivity of the student.

Now, let me relate some of these variables to achieving non-specific mental reactivity. The authoritativeness and prestige of the instructor insure that what he says will be taken as suggestion by the students and acted upon. Infantilization is a state where the students behave in a child-like manner, but not childish, so that suggestion by the instructor will be readily taken and thus easier learning.

Double planeness of the instructor is a fancy way to say that he has both verbally and non-verbally communicated in a cohesive manner. There should be high positive correlation between the two.

Vocal variety or intonation of the instructor's voice is important in keeping the attention of the students. Variation in speaking rate is also used for the same purpose. Many times the instructor should present the material in a rhythmic manner. He can use student's breathing rhythms or perhaps background music. This rhythm enhances the suggestive atmosphere effect during the passive presentation phase.

Pseudopassivity of the student simply means that the student at times should be in a calm, mental, meditative state during learning. This passivity of the student also enhances the total effect of the suggestive atmosphere.

The preliminary preparations by the instructor are complex and demanding. The instructor must have a clear understanding of the material to be covered. He also must be creative and adapt each point to some special method of presentation. Key words, stories, analogies, ideas, etc., are easy helps to remember. In turn, the student learns to associate the entire principle to one of those keys. From personal experience, I find this type of preparation is the hardest and most time-consuming responsibility the instructor has.

The student must also prepare for learning. Under instruction, the students go through muscle-relaxing exercises, mind-relaxing exercises, and also an exercise where a favorable learning experience is recalled. The muscle-relaxing exercises include such things as stretching, side bends, tensing muscles, etc. Deep breathing, rhythm breathing, and image forming are types of mind calming exercises. The instructor stimulates the student to think back to a favorable learning experience, whether it be reading a novel last night, or a childhood memory of a

mother's reading a story before bed. Students are asked to remember as much as possible about the experience.

These sets of experiences should help the student attain some of the desirable traits described earlier about non-specific mental reactivity.

The second phase of the Lozanov method is presentation of the material. A certain air must be present for the students to have a favorable learning experience. Dr. Schuster best states this in his handbook (Schuster et al, 1976), 'The instructor originates and maintains a positive suggestive atmosphere about the students' expected learning. Negative comments to derogate or run down the students' learning ability are not tolerated nor are they implied in the instructor's speaking nor by his mannerisms at a non-verbal level. Instead it is pointed out to students that they have unconsciously curtailed their own learning abilities from the high learning abilities they had in childhood to their current 'normal' levels. This positive expective atmosphere desuggests the barriers that people have set on their learning skills and suggests positively that they will learn this material better and more easily than they have in the past.'

Generally, the presentation consists of three sections. The first is review of the previous material that has been covered. This may range from the instructor's simply reviewing the main points of the previous session or to group review consisting of students in a group helping each other.

The second area is the active presentation of material by the instructor. He should be 'dynamic,' 'expressive,' and 'authoritative.' He should, as mentioned earlier, incorporate key words and phrases. Another practical method to illustrate a point is image association. Word associations and acronyms may also be used to stimulate ease of learning and better recall.

The third area is the passive presentation of the same material. A short mind-calming exercise, such as Zen breathing is used before this passive presentation. Repetition of this material to the rhythmic breathing of the students is one way of delivering this information. Also delivery to the rhythm of music is effective. The students are asked to think back to the images or ideas that were presented in the active sessions. At the end of this passive session, the students are asked again to do mind-calming exercises. This leaves the students' minds calm and prevents distractions that occur at the end of class from interfering with the material they have learned.

The third area in the Lozanov method is practice of the material. This can take many forms. Conversation labs where students pair off and discuss the material that has been covered is one way to practice. Situation plays and dramas that use essential material can also be effective. Frequent control quizzes are given, where the students check their own progress and grade it. These are not usually seen by the instructor. Examinations can also be used throughout the course for administrative grade, i.e., report card, purposes.

This brief background of the Lozanov method will now give meaning to the rest of the paper as we approach the practical application side of this project.

Procedure. I decided it would be interesting to put the Lozanov method to the test to see if it really worked. At the time, I was teaching two sections of the same class, an ideal situation for testing the method. But test what? One of the hardest aspects of this new resolve was to develop a testable hypothesis. You see, my curriculum is spelled out, and certain material absolutely had to be covered. It seemed logical that one

class should be taught with the new method, while the other should be a stable control group. If you can teach things faster, what about the other group? Someone is going to lose. Avoid that. Well, it was finally resolved that I would teach each group the same material. However, I would try to teach those of the Lozanov section exactly the same material in half the length of time--half the class period. It seemed feasible to me that if the Lozanov group ended the quarter with equal or better grades, the project would be a success. If grades on the Lozanov group increased, then the success would be even greater. Therefore, I set out to prove that by utilizing the Lozanov method, Midshipmen could be taught equal amounts of material in half the amount of time, with at least the same or better retention.

Each section was taught in the same conventional method for the first three weeks. Because of the long, forthcoming Christmas break period, it was felt important to do this because it would give a base, or control data, to work from. It was also thought the success of the new method would be better when they returned from a long break, ready to settle down and get back to the work of study. During the initial three-week period, absenteeism was high. Out of a class of thirty, it was not uncommon to have as many as six absent. So...on the first day after the vacation, I approached the afternoon section with the proposal. It was not difficult to sell them on the idea--to a person, they unanimously agreed to give it a try. There was only one stipulation, that they were not to tell the individuals in the morning section, as they were going to be the control group. And so it started.

A typical learning section would be as follows: The class would start at 3:10 p.m. We would do our muscle-relaxing exercises (usually stretching, back pounding, or both) followed by mind-calming exercises (either controlled breathing where we inhale four counts, hold four counts, and exhale four counts, or relaxed breathing where our minds would say 'in - out' as we breathed). I would then, most of the time, describe a relaxing, beautiful scenic display such as a sunny summer day at a location by a cool babbling brook with a fresh breeze. (This usually occurred during the mind-relaxing exercises. During the first two weeks I would ask each student to remember a pleasant learning experience. After that, I hoped that the previous day's lesson would serve the same purpose.)

We would then begin our day's lesson. The chalkboard was used extensively as a visual reinforcement of what had been said verbally. I would try to vary my pace and intonation, but when questioning the students, they didn't perceive more than normal. Important points were highlighted with acronyms and word association to aid in recall. Near the end of the period, we would begin a mind-relaxing exercise, and review the areas covered in the active section. After a few more minutes of mind calming, the students were dismissed.

Dulled interest was a problem among some of the students. Many would make fun of the exercise before the lesson and distract those who were trying to concentrate. Some of the students thought the method was a hoax and generally were the troublemakers.

Another, yet interesting problem, centered around the morning section students who occasionally attended the afternoon class to make up an absence. Generally speaking, once they attended the afternoon class, they wanted to stay. The afternoon class grew by five persons because of this. At the same time, our percentage of morning absentees remained constant (not counting those who started attending the afternoon section).

Results and Discussion. In relation to the role the instructor plays, there is a perceived effectiveness of the instructor through the students. The students' attitudes toward the Lozanov method are going to determine to some degree how well accepted and effective it will be. To test the effectiveness a questionnaire was made and independently administered by one of the Naval Science students, David Streeter. (Refer to the questionnaire in the Appendix.) The survey indicated a favorable attitude which may have some positive correlation with actual performance on the tests.

The instructor is obviously the focal point or determinist as to how well this program is going to work. He has to be authoritative and expressive during the presentation of the material. He must get the student into that positive, passive state referred to earlier. This was hard for me to do. Some days I just didn't feel like being that way. Then I had to pretend, play act. It takes a great deal of practice to be consistently vivacious.

It is my opinion that these variables are what ultimately determine how much more successful the Lozanov method is over the standard teaching methods.

To test the students' progress, a normal grading procedure was employed. It consisted of a mid-term given at the end of the first three-week control period, and a final given during the final exam period. Several self-evaluation quizzes were also given to help the students measure their progress. It was intended that the first test, the mid-term, cover the first three-week period to test the Lozanov method's claim that it has a better overall long retention. If a student improved a relative grade on the final, chances are that the overall retentivity was greater.

We therefore, expected the Lozanov section to remain the same or improve over previous scores slightly, comparing the mid-term and the final. We expected the morning section to, if anything, drop or decrease in their comparative performance.

The following table is a summary of the comparative section data: This table exhibits the change between the first mid-term grade and the final exam grade.

	Improved	Same	Decreased
A.M. Control Section	32.3%	20.0%	46.0%
P.M. Lozanov Section	67.8%	3.5%	28.5%

As noted above, the majority of the students exposed to the Lozanov method remained the same or improved their performance, while just the reverse held true for the morning section. The Lozanov method seems to work.

Table A2 in the Appendix provides the raw score section averages and ANACOVA summary. Note that there were no significant differ-

ences between the two sections on either mid-term or final exam raw score averages.

In my estimation, from this quarter's experience, the Lozanov method proved successful. I noted, as a casual observer, that on the self-examination quizzes those with the Lozanov background appeared to have the better understanding of the material. It was almost as if they had learned the art of learning. They seemed to be full of a sparkle and a desire to learn. That made teaching rewarding and enjoyable. Interesting also is the fact that the Lozanov section had a very, very low absenteeism rate. Most of the time no one missed class.

The majority of students at this university would, therefore, benefit from exposure to the Lozanov method.

By the way, I also succeeded in one of the other objectives. It became really easy to teach the afternoon class the same material in half the time with no significant disadvantage. That little feat gave me 20 additional minutes each day, which could be devoted to other projects or responsibilities.

In conclusion: Lozanov method will be taught to all my students from now on.

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APPENDIX

Table A1. Percentage responses from student questionnaire

1. Do you like the Lozanov learning method?
   92% yes, 4% no, 4% other (explain).
2. How would you describe your interest and dedication in using the Lozanov method?
   0% very eager, 60% eager, 40% middle-of-the-road, 0% poor, 0% very poor.
3. How would you describe the instructor's interest and dedication in using the Lozanov method?
   16% very eager, 60% eager, 20% middle-of-the-road 4% poor, 0% very poor.
4. Do you feel the information you received was credible and comes from an authoritative source?
   84% yes, 0% no, 16% other (explain).
5. Is the material presented in an expressive and interesting manner?
   72% yes, 12% no, 16% other (explain).
6. Do you feel the muscle-relaxing exercises put you in a better learning state?
   68% yes, 16% no, 16% other (explain).
7. Do you feel the mind-relaxing techniques put you in a better learning state?
   76% yes, 16% no, 8% other (explain).
8. Have you used either the mind-relaxing or muscle-relaxing techniques in other classes?
   56% yes, 44% no, 0% other (explain).
9. Do you perceive a desire by the instructor to communicate freely and clearly to you?
   88% yes, 12% no, 0% other (explain).
10. Does the pace of the lecture agree with you? (too fast, too slow, etc.)
    52% yes, 44% no, 4% so-so.
    If no, what is wrong?
    0% very slow, 50% slow, 0% medium pace, 20% fast, 20% too fast, 10% other (explain) (uninteresting).
11. Are you more inclined to take notes while using the Lozanov method?
    28% yes, 52% no, 20% other (explain) (no change).
12. Do you feel confident about material that has been covered so far in relation to other classes where you don't use the Lozanov method?
    74% yes, 26% no, 0% other (explain)
13. Which statement would you choose to summarize the experience you've had with the Lozanov learning method?
    0% It was a total waste of time.
    4% This method was not beneficial, but not harmful in aiding me in the class.
    88% Interesting, may have some value for me.
    8% I found the method very useful and intend to use it again if possible.
    0% Other (explain)

Table A2. ANACOVA summary for the effect of treatment and school rank on final exam scores

Source	df	SS	F
First exam	1	75.04	5.37*
Treatment	1	28.51	2.04
Rank	1	35.73	2.56
Treatment x Rank	1	10.36	0.74
Error	57	796.16	—
Total	61	920.60	

*$p < .05$

Exam treatment means

Treatment	First Test		Final Test	
	N	Raw Scores	Raw Scores	Adjusted Scores
Control	34	30.00	40.65	40.74
SALT	28	30.68	39.39	39.28

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Initial Approach to Relaxation and Subsequent Relaxation Treatment Effectiveness

Lawrence Mohr

Abstract

This study was an attempt to begin answering the question of which relaxation technique is most effective with what kind of person. The effect of various relaxation techniques with different types of subjects was studied by correlating self-relaxation approaches (physiological or psychological) with subsequent relaxation treatment effectiveness in each of the three treatment groups. Significant correlations were found for three of six outcome measures for subjects in the progressive relaxation treatment groups, indicating more success for those that used a physiological initial approach. Correlations for the autogenic training treatment procedure and the self-relaxation control were non-significant. Implications for future research directions are discussed.

Introduction

Several relaxation approaches are available for persons suffering from stress and tension. Among these are hypnotism (Orne, 1959, Barber, 1960), progressive relaxation (Jacobson, 1938, 1957), autogenic training (Schultz and Luthe, 1959), and electromyographic biofeedback (Basmajian, 1963; Budzynski and Stoyva, 1972). Most of these have been evaluated to an extent for effectiveness (e.g., Laxer and Walker, 1970; Schultz and Luthe, 1961; Budzynski and Stoyva, 1972; and Bernstein and Borkovec, 1973) and to a lesser extent in comparative studies (e.g., Paul, 1969, McAmmond, Davidson, and Kovitz, 1971; Borkovec and Fowles, 1973; Mohr, 1975). Little work has been done to evaluate the techniques as to what technique works best for what type of client.

The following study represents some preliminary work in attempting to answer this question.[1] Borkovec (1973) in a review of anxiety research implied that different approaches to anxiety reduction should be differentially effective depending upon the system (mental, behavioral, or physiological) used principally by the individual in determining the extent of their anxiety. How the client initially attempts to relax may be likewise important for persons having difficulty in relaxing and a treatment plan might include consideration of the initial approach. The following study offers some preliminary data concerning the effectiveness of two relaxation techniques (progressive relaxation and antogenic training) when the subjects principal approach to relaxation is considered.

This study was part of a larger study (Mohr, 1975). Basically, subjects, were asked to respond to one of three alternatives (a physiological description, a psychological description, or 'neither of the above') which best described their approach to self-relaxation during a five-

[1] Counseling Psychologist: University of Alaska, Fairbanks, Alaska. The author wishes to express appreciation to Drs. Patrick Boudewyns and Dianne Carter for their assistance with this study.

minute acclimation period. This information was then correlated with the effectiveness of the various subsequent treatment programs (progressive relaxation, autogenic training, or the self-relaxation control).

Method

The Initial Approach to Relaxation Assessment

All subjects were asked to respond to the following paragraphs after an initial five minute self-relaxation acclimation period:

Which of the following paragraphs best describes the approach you've just used to relax yourself?
Please mark one.

(A) 'I tuned into my body, located tense or unrelaxed areas, and began to release muscle tension in these areas. As the muscles relaxed, I began to feel more relaxed. The physical state of my muscles and body was the most important focus.'

(B) 'I started to think of pleasant thoughts, scenes, or images. I thought of how relaxed I was becoming. The consideration of pleasant ideas helped me to become more relaxed. My psychological state was the most important focus.'
(C) Neither of the above. (Please specify.)

This data was used to evaluate whether subjects saw themselves as using a primarily physiological or psychological approach to relaxing.

Subjects

Of the seventy-two male and female volunteer subjects (self-selected as having difficulty in relaxing) used in a previous study (Mohr, 1975), forty-six were selected. The criterion for selection was that they self-rated themselves as either having used a physiological approach or a psychological approach to relaxation during an initial five-minute relaxation acclimation period (12 males and 11 females in each group). The remainder of the seventy-two subjects self-rated themselves as using neither of the above approaches or both of these approaches and were subsequently not used for this part of the investigation. Ages ranged from 18-50 years.

Apparatus

Instruments for measuring four physiological responses were used in the study. Heart rate was taken by using a Parks Model 270 plethysmograph and a digital mercury strain gauge attached to the distal segment of the subject's finger or thumb on the non-dominant hand. Finger temperature was taken from a thermistor on the ventral surface of the middle finger, again from the distal segment. This information was collected by a BFT 301 temperature biofeedback device. Skin conductance was monitored with two electrodes attached to the palm of the non-dominant hand. A Wheatstone Bridge attenuated the voltage. The above data was all recorded on a Grass Model 7 polygraph. Also, frontalis muscle electromyographic uV activity was measured through

three electrodes in a head band. This datum was monitored through a BFT 401 biofeedback device. Periodic readings were obtained with a BFT 215 time period integrator, set to observe one-minute time samples.

Procedure

Upon arrival at the laboratory, each subject was randomly assigned to one of the three experimental groups; progressive relaxation, autogenic training, or the self-relaxation control group. Each group of subjects was given a standard introduction while the physiological sensors were connected. Then each subject was asked to relax on his/her own for five minutes as best he/she could. Pre-test data were taken at the end of this five-minute period. Also, the 'initial approach to relaxation' assessment was completed after this five-minute period. Then subjects were given instructions in conjunction with their particular treatment group and a separate instructional tape was played for each group. For the progressive relaxation group, 24 minutes of progressive relaxation exercises were played (Bernstein and Borkovec, 1973). For the autogenic training group, 24 minutes of exercises from the first two standard exercises of autogenic training were played (Schultz and Luthe, 1959). For the self-relaxation control group, 24 minutes of silence was presented on the tape.

At the end of the 24-minute period, subjects were instructed by tape to continue relaxing for a few minutes. At the end of a five-minute stabilization period, the post-measures were taken. (A more detailed method section can be found in Mohr, 1975).

Outcome Measures

There were four physiological and two subjective outcome measures used in this study. The physiological measures were changes in heart rate, finger temperature, skin conductance, and EMG *frontalis* muscle activity. The subjective measures consisted of changes in the ratings on an arousal meter and the Anxiety Differential (Husek and Alexander, 1963). The arousal meter was a lever (connected electronically to the polygraph) which could be moved by the subjects to indicate an arousal state from ten (extreme terror) to one (completely relaxed). The Anxiety Differential was a state anxiety measure.

Design and Analysis

Point-biserial correlation coefficients were used to evaluate possible relationships between the choice on the initial approach to relaxation assessment and the amount of tension reduction found for subjects within each of the three experimental groups. Thus, there were six correlation coefficients (for each of the six outcomes) for each of the three treatment groups.

Results

Point-biserial correlations (Bruning and Kintz, 1968) were calculated for each of the six outcome measures within each of the three treatment groups. Thus, the physiological or psychological approach to relaxation was correlated to the effectiveness (tension reduction) of the three treatment approaches (Table 1). These correlations were non-significant for subjects receiving the autogenic training and self-relaxation control procedures ($p > .05$). However, the group receiving the progressive relaxation instructions indicated a significant correlation for heart

rate (rpb (12) = -0.569, $p < .05$) and near criterion correlations for EMG *frontalis* level and the Anxiety Differential (rpb (12) = -0.523 and -0.530 respectively, $p < .06$). These correlations indicated that subjects who reported having initially used a physiological approach tended to derive more benefit from progressive relaxation than subjects who reported having used a psychological approach during the acclimation period. Data from subjects in the autogenic training and control groups did not indicate similar relationships.

TABLE 1

THE CORRELATION BETWEEN SUBJECTS' INITIAL PERSONAL APPROACH TO RELAXATION AND THE EFFECTS OF TAPED INSTRUCTIONS

Outcome Measure	Progressive Relaxation	Autogenic Training	Self-relaxation Control
Heart Rate	-0.569**	-0.041	0.370
Finger Temperature	-0.151	-0.223	0.052
Skin Conductance	-0.259	0.006	-0.373
EMG Frontalis Activity	-0.523	-0.143	0.367
Anxiety Differential	-0.530*	0.384	0.149
Arousal Meter	0.067	0.069	-0.392

**Significant at = .05 *Significant at = .06

Discussion

Of course, correlation data cannot be used to indicate casual relationships. However, the subject's 'present approach to relaxation' correlation data provided some evidence of a replicable relationship between the effectiveness of the progressive relaxation procedure and one's prior disposition to focus on physiological cues. This implies two hypotheses for future research. First, subjects may need to learn to focus upon physiological cues before the progressive relaxation technique can be used efficiently. Thus, it may be beneficial to offer sensate focusing or similar exercises before beginning the relaxation training. Second, pro-

gressive relaxation may be most efficient with people who are more inclined to attend to physiological cues, where other techniques may be more effective for those who are not inclined to focus upon physiological cues.

Assuming that progressive relaxation is a highly effective technique with persons who tend to focus to physiological cues, future research should investigate possible techniques which are effective for individuals who tend to use psychological (or behavioral, ala Borkovec, 1973) cues to aid in relaxation. For example, hypnosis with relaxing mental and visual fantasies may be a more productive approach with psychologically focused people, while progressive relaxation could be used most efficiently with persons who focus physiologically. The second application appears most interesting and is the subject of future research in these laboratories.

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Summary Statement on Counseling-Learning and Community Language Learning

Earl W. Stevick

Foreign Service Institute

Department of State, Washington, D. C. 20520

Abstract

This paper presents an overview of Charles A. Curran's counseling-Learning, or Community Language Learning as it is commonly called in the language field. The method deals with the student as a whole person, cognitively, emotionally, physically, and socially. Counseling-Learning as a strategy focuses on the students' psychological security, arranging opportunities for their assertiveness, attentiveness and reflection on the learning materials.

Since 1969, I have had an increasing interest in unconventional methods of language teaching. My contacts with Suggestopedia have been mostly indirect, but I am convinced that it has tremendous importance for language teaching, for all of formal education, and beyond. My own experience during the past four years, however, has been with another approach to education, called Counseling-Learning. At Dr. Schuster's request, I am happy to share with the readers of the SALT Journal the following brief summary of my own understanding of this approach.

Counseling-Learning was originated by Charles A. Curran, of Loyola University, in Chicago. Its chief emphasis is on dealing with the learner as a whole person: with his cognitive, but also with his somatic, emotional and social aspects. It is at the same time a *view* of what goes on in the classrooms, and a *relationship* among the people in the classroom, and a *strategy for reaching course objectives.*

Counseling-Learning as a View of What Happens. Each part of the learner affects all the others: Cognitive success may produce an emotion of pride, relief, etc. Emotional stress, whether originating inside of class or outside it, may interfere with cognitive functioning. Physical health and comfort affect, and are affected by, the emotional climate.

Each activity, and each person within the classroom, has a physical, emotional, and cognitive impact on everyone present.

Counseling-Learning as a Relationship. In the early stages of the process, the teacher tries to understand where the students are from moment to moment linguistically, but also emotionally. He/she also tries to let the students feel that this understanding exists, and that the teacher accepts them in whatever linguistic/emotional state they may

be. The effect of this understanding-acceptance is typically to relieve the students of many of the anxieties which would otherwise interfere with their learning. Under these circumstances, students are able to regain some of the childlike plasticity and openness that can be so important in furthering learning. Under these circumstances also, students are able to reach out to one another, giving and accepting help, and becoming more and more a community rather than just another class.

In the later stages, students assume responsibility for giving to the teacher the same kind of understanding and acceptance that they received from him/her in the earlier stages, so that the relationship becomes one of mutual, rather than one-way, support.

Counseling-Learning as a Strategy. The teacher gives first and unending attention to the subtle and complex matter of student *Security*. When students are relatively (never absolutely!) secure, they will put more of themselves into the activities where some degree of choice is allowed them (*Assertion*). What they have thus 'invested' themselves in will receive a superior quality of *Attention*. Experiences to which students have given attention are then brought back and looked at in many ways (*Reflection*). This further processing of the original material leads to *Retention*. When students have retained a body of material, they are ready to sort it out and see how one thing relates to another (*Discrimination*). As this S-AA-RR-D cycle is repeated, 'investment' increases in scope, and 'discrimination' becomes progressively more refined.

Community Language Learning. The Counseling-Learning approach has been used in elementary education, in teaching Irish dancing, and in other subjects besides foreign languages. Applications in the language field are commonly labelled 'Community Language Learning' (CLL). There are certain techniques which have been used frequently in CLL, but there is a wide range of flexibility. What is essential is that any technique be consistent with the supportive relationship characteristic of Counseling-Learning.

What Counseling-Learning is Not.

1. *Counseling-Learning is not a power vacuum.* As the course proceeds, students may be given choices of wider and wider scope, but the person ultimately responsible for determining what these choices will be, and for structuring the time, is the teacher. (If students do not feel that this is so, their security can be severely damaged.)

2. *Counseling-Learning is not random conversation, or unstructured activity.* The 'reflection' phase may include games, cognitive activity, even conventional drills. The initial 'investment' phase is also carried out according to clear rules.

3. *Counseling-Learning is not incompatible with any set of teaching materials.* The view, the relationship, the strategy, all may be realized–or fail to be realized–with Bennett's Latin Grammar, or the

Audio Lingual Materials, or the St. Cloud Method, even with the CLL techniques themselves.

I see Counseling-Learning and Suggestopedia as two separate systems, each with its own internal consistencies, and its own integrity. I would be reluctant to try to evaluate one from the point of view of the other. I do feel, however, that there are some very important realities with which both systems deal, and on which each contributes its own characteristic insights — realities which are largely ignored by the more conventional approaches to language education.

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Curran, C. A. *Counseling-learning in Second Languages.* Apple River, Illinois: Apple River Press, 1976.

Note: Further information on Counseling-Learning is available from:

Counseling-Learning Institutes
215 E. Chestnut Street
Chicago, Illinois 60611
(312) 266-9119

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The Effect of Background Music Relative to Speaking Volume, Previous List Exposure and Sex of Subject on the Learning of Rare English Words

D. H. Schuster and Rebecca Pansegrau

Iowa State University

Abstract

The purpose of this study was to attempt to repeat the Suggestopedic claim that whispering material to be learned can be especially effective with below average students. This study used an ANOVA design in an attempt to verify this claim with college students. The independent variables were; speaking volume relative to background music during list presentation, previous list exposure, ability level and sex of subject. The dependent variables were the number of rare English words defined correctly immediately after learning and again one week later. Several significant results were obtained. The first was a sex by speaking volume effect: males learned more as speaking volume increased, whereas females' learning was independent of volume. Males learned more words per list than females. Previous exposure to a list was quite helpful in learning and good students learned more than poor. No support was found for Lozanov's observation that speaking material at low volume helps poor students learn.

Introduction

The impetus for this study came from a statement in Lozanov's book, *Suggestology* (1971) - that whispering material to be learned can be effective with students who are having difficulty with school in general. The premise apparently is that in attempting to understand all the whispering, the student's defensive barriers to learning are reduced. Accordingly, this study was an attempt to see whether this effect could be verified with college students. The basic independent variable was the volume of background music relative to the speaking volume of the experimenter's reading a list of words to students to be learned. The second major variable of interest was the ability level of students, as judged by grades on the first midterm in an introductory psychology course, dichotomized as to whether students were above or below the average test score. A third independent variable was whether the students had heard the list before or not since it was felt that students would be likely to learn the list with much higher acquisition scores if they had heard it once before with normal speaking volume. Finally, sex of subject, male or female, was the final independent variable.

Method

The design was a mixed analysis of variance with independent variables of music volume and previous list exposure as within-subject variables. Ability level and sex of subject were between-subject

variables. A number of other variables for control purposes were included as check variables for reliability.

The independent variables were as follows:

Music volume. There were three levels of this independent variable, 1) voice well under the background music level, 2) voice speaking level approximately equal to the music level, and 3) voice level appreciably greater than the background music level. The experimenter (the second author) practiced with a stereo tape recorder until there was approximately a 10 decibel difference when the voice speaking level was to be either above or below the background music level. Further practice in the intermediate level insured the experimenter was able to maintain her speaking level approximately equal to that of the background music level. This was also checked with a third person.

Previous list exposure. Two levels were used: subjects either had been exposed to the list of 25 rare English words or they had not. They heard half of the lists with a previous exposure and the other half of the lists without any previous exposure. In the previous exposure condition, the lists were read in a dramatic, dynamic style to help attract the students' attention while the rare English words and the common definitions were presented.

Ability level. The midterm raw scores in an introductory psychology course were obtained from data posted by social security number in the psychology department. The average was computed and subjects were categorized as being 1) below average or 2) above average in learning ability as evidenced by their score on this midterm exam.

Sex of subject. Subjects were identified as male or female, since in many vocabulary learning studies females show a slight superiority to males.

List sequence. Lists were coded one through six in the order or sequence in which the lists were presented. This was included to check on a linear fatigue or facilitation effect as subjects went through the lists.

List number. Each of the rare lists of 25 words was assigned an identification number 1-6. While the lists had been developed originally on the basis of random assignment to one of the six lists from a common pool, this random assignment of words to a list might have resulted in minor differences among the lists.

Subject identification was a final independent variable or replication. From two to three male subjects and another two to three female subjects for a maximum of six were in each of the six different groups. All 42 subjects were college students.

Dependent variables. The acquisition score simply was the number right minus the number of words previously known in each list of 25 words as tested immediately after the presentation. The retention score similarly was the number of words correctly remembered one week later minus the number of words previously known in each list of 25.

The experimenter's speaking level during list presentation was a check dependent variable. As a check on the manipulation of speaking versus music volume, subjects were asked at the end of each list presentation to rate the voice volume of the experimenter versus the music on a 1-9 scale. A rating of one (1) indicated that the voice volume was much less than that of the music, five (5) meant that they were comparable and nine (9) that the voice volume was much greater than the music volume in the background.

Procedure. The learning material was presented to six different groups. All subjects took all possible combinations (6) of music volume level and previous list exposure in exactly the same sequence. However,

each group started at a different point in this cycle of six possible treatment combinations. The second experimenter conducted all of the experimental testing.

Results

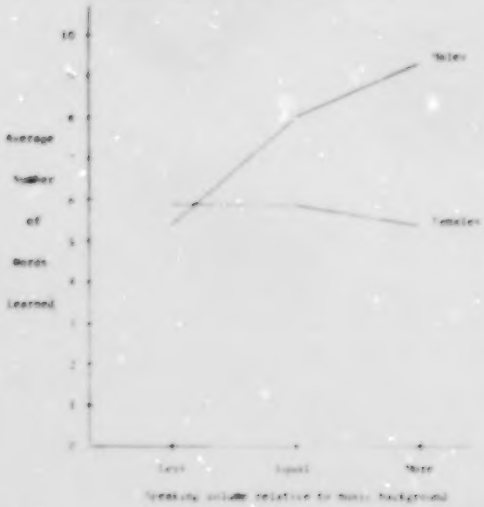
The analysis of variance for the effects of the independent variables on immediate acquisition are shown in Table 1. There are a number of significant main effects and one significant interaction. The effect of sex and speaking volume was significant at the 5% level. These results are graphed in Figure one. The interaction showed that females

Table 1. ANOV summary of the effects of sex of subject, presentation volume level, previous active exposure, group, order of presentation, list and psychology text level on the learning of rare English words.

Source	df	SS	F
S, Sex of subject	1	163.81	7.03**
V, Volume relative to music	2	129.64	2.48'
A, Active presentation previously	1	4333.83	185.74**
G, Group number of subjects	5	444.56	3.40**
O, Order of lists presented	5	101.31	0.77
L, List number of words	5	320.46	2.45
P, Psychology test level	1	0.00	0.00
S X V	2	183.51	3.51
S X A	1	4.67	0.18
V X A	2	41.15	0.79
S X V X A	2	87.61	1.68
V X P	2	59.66	1.14
V X A X P	2	2.02	0.04
Residual	220	5752.50	–
Total	251	12243.86	–

' $p < .10$, * $p < .05$, ** $p < .01$

Fig. 1. The effects of subject and presentation volume level on learning rare English words



perform at approximately a constant level regardless of speaker volume level relative to music, whereas males improved consistently as speaker volume level increased with respect to background music. Apparently, females are more adept at picking up information, even though whispered, than males.

There were significant main effects for sex of subject; the males averaged 7.5 words per list, whereas the females averaged 5.7 words per list contrary to the usual female verbal advantage.

Volume level overall did not quite reach significance at the 5% level.

The effect of a previous active exposure to a list was significant beyond the 1% level. Having heard the list just once resulted in an average score of 2.3 words per list, whereas when the subjects had heard the same list presented actively, their average was 11.0 words per list.

There was a difference in the ability of the groups as shown by the significant group effect. The lowest group averaged only 3.5 words per list correct on acquisition, whereas the highest got 8.0 words right. Since the list and treatments were presented in different orders, the effect of differences among groups was distributed linearly or counterbalanced over the main treatment effects and thus, the significant difference among groups can be ignored.

There were differences among lists ($p < .05$). The lists varied in difficulty from only 4.2 words right to 10.2 words per list right. However, again this variable had been randomly assigned across the treatment condition so this significant difference can also be ignored.

The effect of the independent variables upon retention one week later showed no significant interaction. This finding did not support the premise that poorer students would benefit by having heard the words

Table 2. ANOV summary of the effects of sex of subject, presentation volume level, previous active exposure, group, order of presentation, list and psychology test level on the retention of rare English words.

Source	df	SS	F
S, Sex of subject	1	7.37	6.91**
V, Volume relative to music	2	8.22	3.85*
A, Active presentation previously	1	90.47	84.81**
G, Group number of subjects	5	14.06	2.64*
O, Order of lists presented	5	32.54	6.10**
L, List number of words	5	18.2[illegible]	3.43**
P, Psychology test level	1	6.17	5.79*
S X V	2	3.95	1.85
S X A	1	1.15	1.08
V X A	2	0.48	0.23
S X V X A	2	0.03	0.02
V X P	2	2.96	1.39
V X A X P	2	0.57	0.27
Residual	220	234.69	--
Total	251	436.68	--

* $p < .05$, ** $p < .01$

whispered. However, all of the six independent variables had significant main effects themselves. Males remembered 0.96 words versus the females' 0.63 words per list one week later. The effect of speaking volume was such that words when whispered were remembered less well than when given at a volume equal to or greater than that of the music. The effect of previous active exposure to the words was as follows: no previous exposure resulted in an average of 0.18 words per list correct,

whereas when the students had heard the list before, it resulted in 1.41 words correct per list.

There were significant differences between the six groups, ranging from 0.3 words per list remembered correctly to 1.06 words per list remembered. There was a significant order effect with the second list's being remembered best, 1.75 words per list, while the last list had only 0.36 words remembered one week later. There were significant differences between the lists on retention with the worst list having 0.38 words per list remembered correctly one week later, whereas the best had 1.17 words remembered per list. The low ability students remembered 0.58 words per list one week later whereas the better students remembered 0.99 words one week later.

As a manipulation check on volume level the subjects at the end of each list had been asked to rate the experimenter's voice speaking level with respect to the background music level on a scale ranging from 1, the voice was appreciably lower (about 10 db. average) than the music, through 5, equal volume levels, through 9, the voice was higher (about 10 db average) than the background music. As expected, the voice versus music rating was significantly different over the three manipulated volume levels. The average ratings were as follows ($p < .01$): Level 1 = 1.98 (voice under music), Level 2 = 4.54 (voice equaled music level), Level 3 = 6.92 (voice above music level). Accordingly, the speaking level of the experimenter while presenting the list had been adequately manipulated as intended.

Discussion. The major reason for doing this study was to check on Lozanov's whispering method wherein whispered material was learned effectively by poor learners. This was investigated in this study by examining the interaction between midt erm exam grade in an introductory psychology course versus the voice speaking level, as well as by the triple interaction of voice volume, previous list exposure, and psychology grade. While the main effect of the psychology midterm grade was significant for retention but not for acquisition, neither the two way nor three way interactions with psychology grade was significant at the 5% level nor even approached it. Thus, this study offers no support for the allegedly peculiar effectiveness of the whispering method for people with lower than average academic ability.

A question arises as to whether this study was a fair test of Lozanov's claim about the effectiveness of the whispering method. In this study the psychology midterm grade distribution was dichotomized above and below the average. Thus, lower than average students included people from extremely low ability in learning psychology to people just below average. Possibly this resulted in too high an ability level and that only extremely low subjects should have been investigated. A second possibility was that the experimenter had not been instructed to project images of the words along with whispering the words. The effect of projecting images is probably to provide subliminal cues such as intonation and body language. Such cues might give the subject some hint as to what the words and their meanings were. Since this was not done, this could have been another reason for the study's lack of significant results. Again, talking noticeably lower than background music might not have been close enough to whispering. Speaking level was varied here between different lists, but not within a given list. Part of the success of suggestopedia appears to lie in the deliberate moment-to-moment variation in presentation, including the variable of volume level. Perhaps the alleged effectiveness of whispering lies in its

providing a change in volume level rather than in some peculiar characteristic of whispering itself. There is the possibility of course that the phenomenon itself doesn't exist, and that the originally claimed benefits of the whispering method do not hold apparently in studies of this type. Lozanov had a number of replications so that the phenomenon does appear to exist, at least in Bulgaria. Further research would be needed to try to isolate and identify the conditions under which the phenomenon may exist.

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Accelerated Learning: An Experiment in the Application of Suggestopedia

Marina Kurkov

Cleveland State University

Abstract

An experiment in teaching Russian by means of accelerated learning, a modification of Lozanov's suggestopedia, was carried out at The Cleveland State University in the fall of 1971. The results were evaluated by a comparison of the progress achieved by the two classes involved: the experimental and control groups. The former covered twice as much material in the same amount of time as the control group, thus corroborrating Dr. Georgi Lozanov's contention that in a given amount of time students who are taught by his method learn more, faster, with less effort and retain their knowledge better than other students.

I. Introduction

(1) *The Suggestopedic Method*

An experiment in teaching Beginning Russian was carried out at The Cleveland State University in the Fall of 1971, testing the applicability to an American curriculum of Lozanov's suggestopedic teaching method in which suggestive hypermnesia is induced, in an ordinary state of wakefulness in the classroom (Lozanov, 1971).[1]

(2) *Students*

The experimental section (Russian 121-2) consisted of fourteen students, with nineteen students in the control section (Russian 121-1). The arbitrary decision as to which section would be experimental was made before knowing anything about the enrollment. The nature of the experiment was explained to both sections during the first session. The students were offered a choice--to stay, change sections or make other adjustments.

In a community like Cleveland with many ethnic groups, classes are composed of students who speak/hear languages other than English at home. Some of these have studied the language at church, school or at high school level. Those too advanced for the beginning level are placed in a higher level, determined by the MLA tests (1965) at the time of admission.

The students' records provided the following facts: In neither the experimental nor the control groups were there any students who spoke or heard another Slavic language spoken at home. Of the experimental group 42.8% had had some previous formal training in Russian, while in the control group the corresponding percentage was 29.4%.

[1] Funds were provided by a Research Initiation Grant at Cleveland State University. This article is reprinted by permission of the Center for Effective Learning, Cleveland State University, Cleveland, Ohio and originally appeared in their publication, *Innovative Instruction*, 1973. To the editor's knowledge, this was the first controlled experiment to evaluate suggestopedia in the U. S.

Exposure to another language at home or abroad (a Slavic language especially) and the formal study of Russian are significant factors in a student's progress, although difficult to measure and evaluate. All the students from both groups had studied another language (with varied amount of success for different lengths of time). Aptitude for languages was not tested.

In order to determine whether a basic difference existed between the control and experimental groups, the same 60-item test was administered to the two groups when each arrived at a given point in the textbook. Had their basic abilities or knowledge been significantly different the test results would have reflected this. The tests, however showed no significant difference between the results of the two groups. Analogously, when two second-quarter Russian classes were tested at the end of twenty weeks, there was also, predictably no significant difference between their levels of performance.

(3) *Textbooks*

Both the control and the experimental groups used Clark's *Russian for Americans* (1967). The book consists of twenty-eight lessons, preceded by four introductory lessons. These present the alphabet gradually, with the dialogues transcribed phonetically. The dialogues are recapitulated in Lessons 1-4 in the Cyrillic alphabet, while the grammar sections are expanded to included new material. The lessons contain grammatical explanations, dialogues, exercises, reading material, expression lists (10-20 per lesson) and vocabulary lists of approximately fifty words per lesson. Language tapes and workbooks are available.

(4) *Schedules and Goals*

The experimental class was scheduled to complete eighteen lessons in addition to the introductory A-D units in ten weeks (forty 50-minute sessions). The control group was to keep the pace set by previous Beginning Russian classes: nine lessons in addition to the introductory series.

Roughly stated, the goal of the experimental class was to cover twice as much material as the control section in the same amount of time. An important concurrent goal of the experimental group was reading ability. An appraisal of the role of reading is given by Aronson (1970):

'In general, our first year courses emphasize either conversation or grammar (and usually achieve active command of grammar rather than passive). *Reading, precisely because it is difficult*, is often postponed to the second year course. It is all too often forgotten that the pattern drills of our audio-lingual courses and the grammar exercises of more traditional approaches are of no value unless they have generating power; i.e., they allow the student to generate (or decode) the greatest number and widest variety of utterances. . . . *the real goal of the first two years must be reading ability* and all that that implies, namely passive rather than active command of the grammar, more attention to the goal of passive comprehension than to that of speaking, and the relegation of writing ability to a very low position in the scale of desiderata.'

Reading ability requires knowledge of vocabulary and the rudiments of grammar. The experimental students knew enough grammar at the end of the ten weeks to handle syntactic units, while their vocabulary corresponded to that of a student at the end of twenty weeks of study.

In addition to the vocabularies and expressions from the textbook, the experimental group was given basic vocabulary lists from *The Russian Word Count* (Josselson, 1953). A reasonable goal seemed to be

a total of 695 words comprising the two lists of most frequently used Russian words, considered basic to students entering *second year* (fourth quarter) Russian. Many of these words overlapped with the textbook vocabulary. *From Pushkin to Pasternak* (Josselson and Parker, 1963), a widely used second year reader offers the following in the introduction:

...sampling of the vocabulary of the selections used in this reader, indicates that three-quarters of the words used belong to Lists I and II of *The Russian Word Count*. The remaining four lists account for about 15% of the vocabulary of the text, while about 10% of the words of the selections do not appear on the basic six lists.

It follows that after ten weeks of studying Russian by suggestopedic means the student could master more vocabulary than usual. This would enable him to read Russian with a minimum of disruption and frustration caused by dictionary thumbing. Reading, in its turn, is an effective vocabulary builder.

(5) *Tests and Standards*

A. The MLA-Cooperative Foreign Language Test

The MLA-Cooperative Foreign Language Test (1965) was developed by the Educational Testing Service under contract to the U.S. Office of Education to test the four basic language skills — listening, reading, speaking and writing. Two levels of the test are used: the L level, aimed at the first and second year of secondary language and first year of college language and the M level, for the 3rd and 4th year of high school and 2nd year of college level language. Each level is barely appropriate for the other, being either too easy or too difficult. For greater detail on the statistical characteristics of these tests one is refered to the MLA Cooperative Language Tests *Handbook* and the *Booklet of Norms* (1965). The estimates for reliability, for both the Listening and the Reading Tests were computed by the Kuder-Richardson Formula 20. In both instances, the reliabilities are high: at .85 or above for the Listening Test and between .81 and .94 for the Reading Test. The standard errors of estimate, expressed in converted score units range from 2.7 to 4.2 for the Listening Tests and from 2.9 to 3.9 for the Reading Tests.

B. MLA Series - The Rationale for Selection

The MA level, appropriate to the second-year college level was used rather than the LA level, appropriate for the first year. The reason for this was the fact that Cleveland State students placed higher on the MLA Russian language tests generally than the norms would lead one to expect. The need for such an adjustment had been foreseen by the developers of the series: 'Interpretations based on the local norms may differ significantly from those based on the national norms.'

If, contrary to expectation, the experimental group did not produce scores high enough for comparison with the existing MLA scores administered to more advanced students, a relevant correlation between the scores of the control group and the experimental group could still be made. Had the LA level been used for testing the two groups, there would be no possible upward comparison with the higher scores since for Russian the LA and MA scores are not convertible, and, as has been pointed out above, it is desirable to draw comparisons within local groups.

C. Omission of Writing and Speaking Tests

There were several reasons for the omission of the written and oral tests. While speaking and writing skills were not neglected in teaching

the two groups, it seemed better to concentrate on the *testing* of listening and reading comprehension, since the answers can be treated objectively. Also, in order to use earlier testing data from Cleveland State, we were limited to the above two tests.

D. Other Uses

It should be noted that the MLA scores were not used for evaluating students except to determine the validity of the experimental teaching method. However, in the light of the statement made by the Cleveland State Testing and Evaluating Committee, they could have been used. 'Careful analysis of all the data suggests that the degree of correlation between MLA scores and class grades is very high, suggesting that, no matter what the sceptics think, the MLA tests do reflect adequately what we teach.'

E. Teacher-made Tests

Upon completing the sixth lesson in the textbook, (each group at a different time) the experimental and control groups were administered a test containing 60 units: 30 tested listening ability and 30 reading ability. The goal here was to determine whether these two groups differed in their general ability to deal with a given body of language material.

The experimental and control groups were tested at the MA-level of MLA of listening and reading tests at the end of the tenth week of instruction. At this point the experimental group had completed seventeen of the proposed eighteen lessons, while the control group had finished the nine lessons as planned. The purpose of the testing was to determine whether there a was significant difference between the scores of the two groups.

Both classes were periodically tested on short quizzes which ultimately helped to determine the students' grades. No comparison was attempted at this level.

(6) *Grades and Credit*

Both the experimental and the control groups drew one-quarter of their grade from the midterm examination, one-quarter from the final examination and one-half from the daily work — quizzes, written assignments, classroom recitation, laboratory progress, effort, attitude etc. The reason for placing greater value on daily work was to discourage cramming for both groups and to assure 'copying' of the vocabularies for the experimental group.

Members of the control group upon successful completion of the ten-week course gained 4 hours of credit. Those in the experimental group, having passed their midterm examination (which was equivalent to the control group's final examination), obtained credit and grades for ten weeks of Russian. The subsequent five weeks gave them an additional four hours of credit. The average grade for the control group was 2.5 (C) and for the experimental group (for the total of 8 hours) a 3.0 (B).

II. Classroom Procedures

(1) The Control Section: Russian 121-1

With the control group the teaching method was eclectic. Before the students had mastered the alphabet, the emphasis was on aural-oral works, on classroom repetition and the outside use of tapes. Exercises in the laboratory manual were periodically checked, although attendance was outside of classroom hours and not mandatory.

Grammar was assigned to be read but was explained in class only as the need arose. The hour was mostly devoted to exercises and drills, and later in the quarter, reading and elementary conversation.

Both classes were aware of the existence of the other. From beginning to end the control group could be characterized as a typical beginning Russian class.

(2) The Experimental Section: Russian 121-2

The experimental group met in a faculty conference room which contained conference-type tables, padded chairs and a blackboard. There were no outside windows and distraction was minimal since the conference room was surrounded by faculty offices rather than classrooms.

The students were told initially that in their experimental section a modified version of Lozanov's method would be employed. It was called 'accelerated learning' in order to avoid any undesirable connotations which 'suggestopedia' might have.

The class was informed that this method was successfully used in Bulgaria, East Germany, Russia and India. The method, it was explained, did not involve hypnosis or sleep learning and was obviously not total immersion. It entailed their relaxing while listening to a taped concert, during which the instructor would read language materials. They were to listen to the music, not the instructor.

In preparation for the passive, concert session they would need to copy vocabulary lists from Russian to English and *vice versa*.

The active part of the hour included reading, reciting dialogues, clarifying grammatical problems and taking quizzes. Using a native speaker for the experimental group in lieu of the language lab tapes was justified by the brevity of their active session. The instructor and an assistant were available for one hour a week to practice pronunciation with the students. It was essentially the same arrangement that the control group had in the sense that attendance was not mandatory. An advantage lay in having pronunciation instantly corrected.

This variable would be expected to have most influence on the pronunciation of students, and although students from both groups made tapes in the course of their study, the laboratory versus native-speaker element was not studied.

No special training in relaxation was given to the students, other than the recommendation that deep, rhythmic breathing would facilitate relaxation. Some cradled their heads in their arms; others slid into semi-prone position in their chairs. Most kept their e[illegible]closed during the passive session, during which lights were dimmed.

Initially, the passive sessions were brief: the dialogue would be read from English to Russian and from Russian to English. Then relaxation would be interrupted and students asked to repeat phrases after the instructor. Subsequently, as the students learned the alphabet and could prepare for the passive sessions by copying the vocabularies, the passive sessions were extended up to 30-35 minutes, with a 15-20 minute active session. Students expressed their perference for longer passive sessions, noting that the relaxed state became deeper during a prolonged passive session.

The vocabulary quizzes, while consuming much of the active session, were given for each lesson. The majority of these quizzes were Russian word or phrase lists for which the student would supply the English equivalent. While the quizzes were graded in terms of percentage correct, this was not a part of the daily grade. Diligence in preparatory copying *was* graded.

Students could review their quizzes, but were not encouraged to do

so. Instead, they were told their percentage and were each given a list of words which they should review (words they had missed).

The grammar section in each lesson was assigned as outside reading. They were asked to check the appendix in order to see the segment of grammar being studied as a part of the total scheme. Problems and questions were dealt with during the active session.

The experimental group appeared to be less lively than the control group--perhaps due to the passive session, the more sedate surroundings, or the earlier hour. (The experimental group met at 9:00 a.m.; the control at 11:00 a.m.) The student-instructor rapport was not as well developed as with the control section, due possibly to the lesser active-contact time.

III. Evaluation

(1) Comparative Data

Below, reference is made to four classes: the two Beginning Russian classes (the experimental and the control groups, Russian 121-2 and Russian 122-1, respectively) and fifth and sixth quarter Russian classes (Russian 125 and Russian 201), which were selected for comparison because they were of the same local groups as the above, and because the MLA test data were already available.

When the MLA examination scores for these four groups were processed by computer, it was shown that there was a significant difference between the scores of the experimental and control groups at the end of ten weeks of study. There was a significant difference between the achievements of the control group and the experimental group (at ten weeks) and fifth and sixth quarter Russian classes (at fiftieth and sixtieth weeks).

The results of the 60-item test, similarly processed showed no significant difference between the scores of the control and experimental groups. This would seem to indicate that there was no basic difference in the learning capabilities of the two groups.

Students from the experimental group having received credit for Russian 121 and Russian 122 (8 hours) at the end of ten weeks, continued their study by merging with a class which had achieved its third quarter status by regular means. This merged 123 class, consisting of experimental and regular groups, proceeded to study Russian by intensive reading, supplementing this with language analysis exercises, written compositions and toward the end of the quarter, oral reports. The 123 program was somewhat ambitious in that a second-year reader was used. More than half was covered, although one third of the book is considered sufficient for a ten-week session, beginning with the 124 level.

The suggestopedic method was not practiced, although some of the experimental group students inquired about continuing vocabulary study by means of suggestopedic tapes. This was not done, although one student persisted in "copying" vocabularies.

The overall grade comparison of the experimental and regular com-

ponents of Russian 123 seem to point to an integration of the two groups, in as far as grades were concerned. Initially, there was social polarization between these two segments. Toward the end of the course, however, the group was well integrated.

(2) Conclusion.

In evaluating the suggestopedic method, Lozanov (1971) writes: "The suggestopedic memorization session is decidedly a new element in the process of education. Its goal is to assure memorization of the program presented, which, due to the suggestopedic conditions, is significantly greater than usual for the capability of human memory. With some experiments the material which is presented for memorization may attain fantastic proportions."

In this experimental application of suggestology, the first ever despite the modifications — some probably inadvertent. At an American University, the results were favorable, the accomplishment of twenty weeks' work in ten weeks was considered encouraging, although one cannot with certainty isolate the responsible variables. The experimental students were shown later to assimilate well into a group which had studied by regular means. The grades of the experimental group in the subsequent course Russian 123 were satisfactory. A quarter later, in 124, while no longer under direct observation, each experimental student was seen to perform according to his own interest and capacity. The early learning spurt during suggestopedic training, was followed by nearly standard development.

It is to be hoped that further studies of suggestology in America would seek to broaden general knowledge in this area rather than repeat what has already been demonstrated in Bulgaria. Regarding application of the method, it should be stressed that for practical application, an internship is not only recommended, but essential for teachers.

(3) Comments

It is interesting to consider some of the theoretical aspects of the suggestopedic method and to examine the means and degree of their incorporation into the teaching experiment at Cleveland State University.

A. Authority

Authority plays an important — if not decisive — role in obtaining good results with suggestopedia. According to Lozanov (1971), it is "one of the basic elements in suggestopedic methodology". In a way, two other key elements "infantilization" and "intonation" depend on authority.

Taking into consideration that the average American student does not stand in awe of his teacher as much (if at all) as his European counterpart, the effectiveness of suggestopedia might appear to be in doubt. However, there are many forms of authority which would seem to dispel that doubt. Lozanov lists the authority of personality, dogma, faith, common sense (logic), experience, a good artisan, teacher, doctor, parent, the majority, the collective.

The instructor's self-evaluation in terms of authority (medium minus to low plus) — based on the attitude of "let us learn" rather than "let me teach you" — was probably compensated for by the authority of the institution where the experiment was conducted; the authority of the instructor's belief in success of the project; the authority of the majority (none of the original students transferred to the control group when given the chance to do so). Equally important and quite apparent was the authority of experience which was demonstrated by the quiz scores.

B. Infantilization

Lozanov's concept of infantilization is not Freudian, as he points out, nor does it entail regression, being a selective process in which the malleable qualities of early childhood, such as trust, serenity and acceptance predominate. Normal intellectual activity is not impaired.

When the means for achieving this are suggested, it is not difficult to see "infantilization" developing in the experimental class: *pseudopassivity* (i.e. relaxation), a serene *atmosphere* generated by the dim lights, music; *role playing* (as in acting out dialogues); and the inevitable *name change* (even if the Russian equivalent is not given, an American name pronounced with a Russian accent is different.)

C. Intonation

The role of intonation in suggestopedia appears to be subsidiary, a means for conveying a stream of signals to the student. Thus, a "declarative tone," a "quiet tone, full of significance," "a powerful, sure, hard, final tone" — all are used to establish authority. And although Lozanov examines the part played by intonation in great detail (including intonograms) he finally deemed it to be unnecessary.

D. Rhythm

Experiments with rhythm have shown that with suggestopedia, a ten-second interval between utterances gives a statistically significant positive result. This rules out the contention that simple repetition is responsible for the result (with 1-second, and 5-second intervals it proved insignificant). In the experimental class at Cleveland State. It was not possible to have the 10-second pause, due to the brevity of the session.

E. Concert Pseudopassivity

Concert pseudopassivity is defined by Lozanov as the deep relaxation which occurs during the passive session. It is beneficial but only insofar as it leads to a suggestible state. Calm and trust prevail, and no intellectual effort is made to recall or analyze. Thus, the anti-suggestive barriers are overcome and various mechanisms discussed above are activated.

Not having measured the degree and quality of relaxation experienced by students during the passive session by recording the bioelectric activity of the brain, there is only the student's own assessment of the quality and degree of his relaxation. Of the polled group, 41.5% sometimes relaxed, 24.9% always relaxed, 8.3% concentrated on the instructor, while others reacted variously.

F. General Remarks

It would appear, judging from the student evaluation, that, on the whole, they were in favor of the method, although many felt that they needed to spend more time than usual outside preparation, such as vocabulary copying and reading grammar. The assignments, from the instructor's point of view were the same length as other Beginning Russian assignments.

Approximately one-half of the students thought that they could have accomplished as much without this method, while one-third thought they could not. More than one-half estimated that they could have done as well if no grades were involved, while the one-third assumed that it was better to have the incentive of grades.

Over one-half of the experimental group were satisfied with their accomplishments, 8.6% were dissatisfied, while the remainder had specific recommendations instead — such as: "We went too fast," "Most relaxing class," "I should have copied more consistently," "We should have spent less time on easy lessons, more on the hard," "Longer passive sessions."

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An Experimental Evaluation of Suggestive-Accelerative Learning and Teaching as a Method of Teaching Vocational Agriculture

Randy Gerald Walters,

Iowa State University

Abstract

This study was conducted to evaluate experimentally the effectiveness of the S.A.L.T. (Suggestive-Accelerative Learning and Teaching) method of instruction as compared to a conventional method of teaching high school vocational agriculture. The population of this study consisted of ninth grade vocational agriculture students (N= 44) at a central Iowa junior high school. While neither the school nor grade were selected randomly, one section of students was administered the experimental S.A.L.T. treatment for teaching vocational agriculture and another section taught conventionally served as the control group. Pretest scores were used as a covariate in analysis of covariance with dependent variables of achievement, school attitude and locus of control (perceived as internal or external). While no significant difference was found in agribusiness achievement scores, the S.A.L.T. treatment group had been taught in less than half of the time taken in the control group. At term-end, the S.A.L.T.-taught students had significantly better student-teacher affective relations, a better attitude toward school learning, and a better internalized locus of control score than the control group.

Introduction

Agricultural educators have spent much time and effort in the development of new teaching methods during the past ten years. These methods have provided educators with an improved vehicle to help the secondary pupil achieve his or her academic aspirations and goals. Although many of the educational teaching methods have been proven better than others, many excellent concepts and ideas have not been implemented and have not made a significant impact on the educational system. Before the educational system will discontinue the use of one or more methods, another must be developed with an impact of 'revolutionizing' the educational process.

The concept of holding on to these standard teaching methods holds true for agricultural education, as it does for the gamut of educational studies. Agricultural education personnel have completed studies on different teaching methods, and have found differences between and among methods, but some high school agricultural educators have held onto the 'old standards', some of which may be outdated.

Educators are continually faced with the challenge of providing a better vehicle for conveying knowledge from the instructor to the student in a more effective and efficient manner. Studies must be continually made to provide the educational departments of the university systems with better teaching methods, for the sake of the pupils and the educational process. Providing educational programs that meet the needs and interests of the students should continue to be the primary

goal of educators today. If teachers possess the technical knowledge without the proper method to convey that knowledge, the student may be short-changed from his educational rights. A continuing effort must be maintained to find new and better teaching methods for students in all educational fields.

The scope of education is rapidly changing due to the concern of professional educators who hope that they can find that 'miracle method', allowing students to learn as quickly as the senses will permit. In this relentless search, new methods are being revealed and implemented in the daily programs in many school classrooms to rejuvenate interest and enthusiasm. The loss of interest and enthusiasm in a classroom may not be the result of indifference of the students toward the subject matter, but rather the result of a poor delivery method used by the instructor. Many instructors dismiss the importance of new teaching methods in their classrooms, while exclusively using traditional methods that may be ineffective. These instructors are adept at keeping education at a standstill. Methods must change to prevent stagnation and repetition.

Statement of the Problem

In recent years, a considerable amount of time and effort has been spent on developing new teaching techniques for vocational agricultural education. These new techniques have proven somewhat successful, and are widely used in the high school vocational agricultural classroom. The lack of new, innovative teaching methods has brought about a need to determine if the Suggestive-Accelerative Learning and Teaching (S.A.L.T.) method of instruction is more efficient and more effective than conventional methods.

This study was conducted to evaluate experimentally the effectiveness of the S.A.L.T. method of instruction as compared to conventional methods of teaching high school vocational agriculture. This information should provide assistance to vocational agriculture educators in determining the most effective teaching methods of preparing students to attain their educational and occupational goals.

Purpose of Study

The primary purpose of the experiment was to determine if there was a significant difference in measurable classroom achievement, attitude and control of destiny related to agronomic science among students taught by two methods of instruction. The methods of instruction used in this study were as follows:

Treatment Group: The Suggestive-Accelerative Learning and Teaching (S.A.L.T.) method of instruction.

Control Group: The conventional instruction consisting of: (1) lecture, (2) single concept film, (3) overhead transparency, (4) prepared lesson plan, (5) field trip, and (6) demonstration.

Objectives of the Study

The specific objectives of this research were as follows:

A. Determine the effect of conventional methods of instruction on the measurable subject matter level of achievement by students.

B. Determine the effect of the S.A.L.T. method of instruction on the measurable subject matter level of achievement by students.

C. Determine students' interests in the S.A.L.T. method of instruction.

D. Determine the students' attitudes concerning the S.A.L.T. method of instruction.

E. Determine the students' control over learning and destiny concerning the S.A.L.T. method of instruction.

Hypotheses

The research hypotheses identified for this study were as follows:

Hypothesis 1. There was a significant difference in measurable classroom achievement in agriculture between students taught by the conventional method of instruction and students taught by the S.A.L.T. method of instruction, as measured by the *Agribusiness Achievement Test.*

Hypothesis 2. There were significant differences in attitude ratings toward learning between students taught by the conventional method of instruction and students taught by the S.A.L.T. method of instruction, measured by the *Brooks Student Questionnaire*, measuring student/teacher affective relationships, student/school stress and student/school learning orientation.

Hypothesis 3. There were significant differences in opinion ratings toward student control of learning and destiny between students taught by the conventional method of instruction and students taught by the S.A.L.T. method of instruction, as measured by the *Levenson Internal, Personal, and Chance Scales.*

Review of Literature

Instruction Utilizing Suggestive-Accelerative Learning and Teaching

A considerable amount of research has been expended on the study of Suggestive-Accelerative Learning and Teaching (S.A.L.T.) and its implications of accelerating the processes involved with learning subject matter content. This research does reveal conclusive evidence that Suggestive-Accelerative Learning and Teaching is a major factor in a student's ability to learn more rapidly. Assisting students to learn more efficiently and effectively should be a goal of all educators. This review of literature will reveal how some educators are achieving that goal. S.A.L.T., an Americanized version of suggestology, is a method of instruction dealing with suggestion and unusual teaching presentations to enhance learning by the students. Along with mental and physical relaxation as components of S.A.L.T., soft baroque and contemporary music are integrated into a workable, effective, and efficient method of instruction. Some components of this method have been used for many years in the field of agricultural education and most other disciplines of education, but they have never been packaged in such a manner. Dr. Georgi Lozanov of the Suggestology Research Institute, Sofia, Bulgaria was the first educator to integrate these teaching components and use them as an effective teaching tool.

The suggestopaedic system of instruction has the following indispensable characteristics as given by Lozanov (1975):

1. It always involves tapping the reserves of the student's memory and intellectual activity, and in general of his whole personality. There can be no suggestopaedia unless the complex reserves have been tapped.
2. The process of instruction is invariably accompanied by an atmosphere that produces an effect of relaxation or, at least, of no fatigue. There is no suggestopaedia when students become tired.
3. Suggestopaedic training is always a pleasant experience.
4. It has a good effect from the educational point of view in that it softens the aggressive trends in the student and helps him in the process of social adaptation.
5. It has been found that it has a marked pyschoprophylactic and psychotherapeutic effect in cases of functional disturbances or of functional components of organic diseases.

He further reports that the suggestopaedic system does not stem from hypnotic psychotherapy. Hypnosis is a psychotherapeutic method which has clinical indications and is not suitable for instructional purposes.

Ganovsky (1975) describes the basis of suggestology (the suggestopaedic system) as a methodological foundation of dialectic-materialist philosophy. Created as a form of psychic reflection and as a universal phenomenon subject to control, suggestion has great powers as a teaching tool. When suggestology moved into the field of education, this resulted in the emergence of suggestopaedia. This new instructional approach to education is based on the desuggestive-suggestive approach to the students. This method will make the student feel free from the in-

hibitions toward the subject matter and stimulate him to become an improved academic student.

In the suggestopaedic system of instruction, any relationships must be formed before the method can be used effectively and efficiently. Along with the components of Lozanov's method, relationships must be developed between the teacher and the student, and the student with other students. Kitaygorodskaya (1975) brings out this fact in work done on the suggestopaedic system of instruction and courses. The report points out that to guarantee success for the entire system, these relationships must be present. This system of instruction brings out many facets of education that are used worldwide; but when used together, educators can significantly improve learning in students. It can be assumed that the suggestopaedic system can be used successfully in varied curricula throughout the differing fields of education.

An experiment dealing with the application of suggestology in teaching French and English was completed in Canada with excellent results. Racle (1975) reported satisfactory results in teaching Canadian civil servants a foreign language through Lozanov's method. Not only did the students learn rapidly, they had an enormous desire to continue their training following the experiment. The students expressed an interest to come back and train under this method, even on holidays if necessary. Results with other experiments in Canada and reported by Racle have also proven satisfactory.

In Hungary, a research study was undertaken by Rabcsak (1975) with students' learning German and English. A surprising fact was uncovered. After four years of conventional instruction, the best students had assimilated from 2000 to 3000 words with an active use of about 1000 words, showing a tardy readiness to engage in conversation. With the use of the Lozanov method of instruction, it was discovered that students learned nearly 2000 words in 23 days with a willing readiness to engage in conversation.

In 1972, a pilot study was undertaken by Schuster (1976) for the purpose of evaluating the Lozanov method for the instruction of Spanish classes at the college level under a controlled situation. One of the sections was taught by utilizing the components of the Lozanov method, while two other sections were taught using a conventional method. All sections used the same textbook and final exams. The section taught by the Lozanov method attended class two hours per week, while the students taught by the conventional method attended class six hours per week. There were no significant differences in the final exam scores among the three sections. Thus the results showed that the Lozanov method had a time saving margin of about 3:1 over the conventional method.

Bordon and Schuster (1976) initiated two pilot studies to test the claimed superiority of the Lozanov method for teaching foreign languages to students. Their findings showed that students had gained in the foreign language skill from pretest to posttest. This gave some insights to the effectiveness, but since no control group was available for comparisons, more research using the S.A.L.T. method was definitely needed.

Kline (1976) experimented with students' learning Latin by the Lozanov method and found that many were learning at an accelerated pace. By the end of a five-week period, the average student in the language class had retained a mean of 500 words. This was a high total for average students. Some of the students had acquired so many Latin vocabulary words, with an understanding of their meaning, that they had

an equivalent of one year's study. One of the students who had entered the class only for the last two weeks of the study claimed that he had learned more Latin in that two-week period than he had learned in four years of studying French with conventional methods of instruction.

Schuster et al. (1976) state that not only do students learn at an increased rate, but that they also enjoy the subject matter being taught because the students say, 'It's fun to learn, it's easy to learn, there's nothing to learning.' This study was completed with the cooperation of two eighth grade learning disability students taking spelling and math. With the use of the Lozanov presentation, 50 words from a list of 200 spelling demons were presented to the students. The researchers said, 'They did fantastically well.' On the second day of the study the girl kept working at 100 percent, while the boy was having some difficulty. After two days of the Lozanov presentation, both the girl and the boy in the math section could quote fractional arithmetic rules as well as their teacher. There also seemed to be an attitude change in both of the participating students. The attitude change was in a positive nature. This study brought out two important facts about S.A.L.T.: (1) a positive change in self, and (2) accelerated learning.

Not all S.A.L.T. method classes progress as smoothly as others, but even when some classes have discipline and absentee problems, the Lozanov method still may do remarkably well enhancing learning. Gritton and Bordon (1976) studied eighth grade science students comparing the conventional method of teaching with the S.A.L.T. method. Significant differences were found, with the S.A.L.T. method increasing the learning rate 5:1 over the conventional method.

Capehart (1976) investigated the use of the suggestopaedic techniques at California State University-Northridge in teaching elementary statistical concepts to ten graduate students, who were considered to be mathophobes (math-haters). The statistical achievement of the Lozanov taught group was significantly less than that of the comparison group. Having a better background in math initially, the comparison group was not considered to be a true control group. This research also may have been biased against the treatment group due to the test that was used. The value of the study was placed on the demonstration of applying suggestopaedic principles to statistics and on improving the learning attitudes of mathophobes.

Bordon and Schuster (1976) studied the influence of suggestion, synchronized music and breathing on the learning and retention of Spanish words by 32 undergraduate college students who had received formal Spanish training. Analyzing the three independent variables which were suggestion, breathing, and music, it was found that all three significantly affected the acquisition and retention of the Spanish words and that significant cumulative interaction effects occurred also. Learning in this study was enhanced 2.5 times by the integration of the three variables into the S.A.L.T. method.

Instruction in Vocational Agriculture

Kahler (1970) analyzed the effectiveness of selected techniques and resources on instruction in vocational agriculture. The techniques and resources he studied were:

1. Audio-tutorial systems,
2. Demonstrations,

3. Field trips,
4. Prepared lesson plans,
5. Single concept films,
6. Overhead projected transparencies, and
7. Video-tapes.

'It was observed that all of the techniques and resources tested were effective in increasing the student's knowledge of the subject matter. Vocational agriculture instructors should make every effort to inaugurate the use of these techniques in their instructional programs. This should be done, however, after the teachers have had an opportunity to carefully study each technique and become fully aware of its potential use and limitations.'

Observations made from this study support a multi-media approach in the instruction of students. However, a caution was made to teachers to make certain that the best instructional methods were selected for use and not to overuse these techniques and resources in the classroom.

Miller (1974) studied the traditional teaching methods in the instruction of students learning truss rafter construction enrolled in Agricultural Mechanics 255 at Iowa State University during the fall quarter of 1973 and the winter quarter of 1974. The methods of instruction used were:

1. Traditional lecture-discussion techniques,
2. Individualized instruction using a slide set-taped narration,
3. Slide presentation by the instructor,
4. Use of skill procedure sheets in discussing the topic, and
5. Use of a slide presentation along with the use of skill sheets.

In his findings, Miller indicated that there were no significant differences in measurable subject matter learning among treatment groups, using analysis of variance and analysis of covariance for comparison of posttest and gain scores. He concluded that there is no one best method of presenting subject matter on truss rafter construction.

A study by Beane (1969) was made to determine the relationship between instructor's knowledge and the level of his student's academic achievement in agriculture using various techniques of instruction. The instructional techniques used in the study were:

1. Audio-tutorial systems,
2. Demonstrations,
3. Field trips,
4. Prepared lesson plans
5. Single concept films,
6. Transparencies,
7. Video tapes, and
8. Other traditional methods of instruction.

Beane discovered that there were significant differences at the .05 level of confidence among mean posttest scores of students grouped in accordance with their instructor's knowledge of the subject matter. Instructors did change in their knowledge of the subject matter while teaching, affecting posttest scores of students grouped according to their instructor's change in knowledge. However, small differences were found among mean scores of students grouped according to their instructor's knowledge of the subject matter and the instructional method used by the instructors in teaching the units.

A study evaluating the effectiveness of an audio-tutorial method of teaching vocational agriculture was undertaken by McVey (1970). The audio-tutorial programs were presented in each of four subject matter areas assigned to four grade levels of the schools involved in the

research. The results of the study showed that in all four areas of instruction there were no significant differences among the mean pretest and posttest scores of the audio-tutorial and the control schools. The statistical analyses used to show differences between the control and treatment groups in the schools, testing the magnitude of change in knowledge from the pretest to the posttest, yielded non-significant values for each of the four class levels. McVey concluded that the audio-tutorial method of instruction was as effective as the control technique in teaching three of the four subject matter areas used in the research.

Klit (1969) studied and evaluated the use of single-concept films as instructional aids in teaching vocational agriculture. The subject matter areas of animal health, commercial fertilizer, small gasoline engines, and farm credit were taught during the three weeks research period. The statistical analyses of the study did not reveal any difference in magnitude of change in knowledge from the pretest to the posttest, except in the animal health unit. Also, all analyses comparing the achievement of the vocational agriculture classes taught with the aid of single-concept films to those taught in a traditional manner found no difference between the two groups.

An experiment was conducted by Scott (1959) using 81 thirty-minute 16 millimeter films from the 'Harvey-White' T-films series for physics students in 30 randomly selected schools. Some interesting conclusions were found:

1. Films could be used to replace traditional laboratory work.
2. Teachers and students felt that the T-films presented too much new material too fast.
3. Many teachers disapproved of giving up most of their class time to films. T-films represented another teacher in the class.
4. T-films made their greatest contribution when laboratory facilities or teacher ability was most lacking.

In this study, subject matter taught by traditional methods was used in thirty schools selected as control groups.

Bendixon (1969) initiated a study to determine the effectiveness of overhead projected transparencies on instruction in vocational agriculture. The composite mean posttest scores for the control and treatment groups were compared using an analysis of variance test. He concluded that there was no difference between the two groups in the composite test. Since no difference was found between the two groups of schools, this indicated that no major gains or losses by the subject matter areas taught were incurred between the two groups of schools. It was felt by Bendixon that instructors in the treatment schools relied solely on overhead projected transparencies, while the control group instructors used a variety of methods to instruct their students. His conclusion was that the specific subject matter areas of vocational agriculture lend themselves to the use of one or more methods of teaching.

In a study of 60 vocational agriculture teachers in Wisconsin, Torrence (1956) observed that there was no significant correlation among teacher effectiveness and the teacher's knowledge of technical agriculture, agricultural manipulative skills, knowledge of professional education, or a combination of the above. He did state the need for training institutions to devote more time to the training of vocational agriculture teachers and prospective teachers to perform manipulative farm skills more efficiently.

In summary, the review of the literature revealed a need to evaluate the use of the S.A.L.T. method of instruction as compared to the conventional methods of instruction in teaching vocational agriculture.

Execution of the Study

Design

The design for this research was an experimental study, using the nonequivalent control group design as described by Campbell and Stanley (1966). It is diagrammed as follows:

$$\begin{array}{ccc} O & X & O \\ \hline O & & O \end{array}$$

Since the treatment and control groups could not be selected randomly this type of design appeared to be most appropriate for this study.

Pretests and posttests were given to the treatment and control groups to measure their level of achievement while under study. The differences between the two measures from each group indicated their level of achievement in agronomic science. To test measurable achievement, the students were given the plant and soil science section of the *Agribusiness Achievement Test* (Peterson et al, 1973).

Pretests and posttests were given to the treatment and control groups to measure their attitude toward various facets of instruction under study. The differences between the two measures from each group indicated their attitudes toward the instructional methods utilized in the study. To test attitudes, the students were given the *Brooks' Student Questionnaire* (Schuster & Millard, 1977).

Pretests and posttests were given to the treatment and control groups to measure their feelings of control over learning and destiny. The differences between the two measures from each group indicated their control over their own learning and destiny. To test control, the students were given the *Levenson Internal , Personal , and Chance Scales* (Levenson, 1973).

Population

The population of this study consisted of ninth grade vocational agriculture students at McCombs Junior High School, Des Moines, Iowa, and Southeast Polk Junior High School, Runnels, Iowa. Neither the schools, students, nor grades were selected randomly.

This population was selected because of their proximity to the Iowa State University campus. The schools had to be within an hour's drive of campus in order for the researcher to administer the treatment and fulfill other responsibilities at Iowa State University. This situation placed some restraints in selecting schools for the research study. Although the population was quite small, generalizations can be made about the groups and applied to others under similar circumstances.

Sample

The sample for this study was considered the same as the population.

Independent Variable

The following independent variable was identified for this experimental study:

A. Method of instruction in agronomic science:

1. Conventional method o f instruction, and

2. Suggestive-Accelerative Learning and Teaching (S.A.L.T.) method of instruction.

Dependent Variables

The following dependent variables were identified for this experimental study:

A. The level of achievement attained by the students on the *Agribusiness Achievement Test* (Peterson et al, 1973).

B. Attitude of students toward various facets of instruction as measured by the *Brooks' Student Questionnaire* (Schuster et al, 1977) with separate scales for student/teacher affective relationship, student/-school stress, and student/school orientation.

C. Feelings of control by students over learning and destiny as measured by the *Levenson Internal, Personal, and Chance Scales* (Levenson, 1973).

Instrumentation

The instruments used in collecting the data for this study were as follows:

A. *Agribusiness Achievement Test*: This test developed by Peterson, Harvill, and Horner (1973) provided aid in the decision and assessments that must be made about 1) curricula and programs of instruction, 2) individual student progress and needs, and 3) student plans and preparations for continued education.

'The test items reflect the typical high school agriculture curriculum based on a study of current materials from the recommendations of teachers in the field, and the reports from a survey of 160 high schools throughout the country.'

The author reported that the test is essentially diagnostic in nature, whether the diagnosis is for individual students or curricular analysis. The reliability coefficients are relatively constant in the plant and soil science section through grades one to twelve. Work on the *Agribusiness Achievement Test*, which took approximately three years to complete, was the culmination of over seven years of testing in the area of agriculture.

B. *Brooks' Student Questionnaire* (Schuster et al, 1977). This attitude survey was developed to determine:

1. Student/Teacher Affective Relationships,

2. Student/School Stress, and

3. Student/School Orientation.

The student/teacher relationship scale items measure how the student feels about his/her relationship with teachers. Student/teacher relationship is how the student feels about working and communicating with the teacher. The following is an example of the type of question in the student/teacher affective relationship scale: My teachers encourage students to be friendly and kind to one another.

The student/school stress scale items are believed to measure the school stress which a student feels. Student/school stress is the pressure students feel that the school is placing on them. An example of the type of question in the student/school stress scale is as follows: My teacher gives me work that is too hard.

The student/school orientation scale items measure how oriented a student is toward school and learning. Student/school orientation is the inclination or interest students have toward school. Below is an example of the type of question in the student/school orientation scale: I want to learn something new in school each day.

C. *Levenson Internal, Personal, and Chance Scales*. Levenson's (1973) test was devised to show control which a person believes he has over his own destiny. The different aspects of locus of control are: 1) internal, he controls his own destiny, 2) his destiny is controlled by powerful people, and 3) chance forces control his destiny.

The test in its development was first administered to functionally psychotic and neurotic inpatients to measure the three aspects of control. The test has since been taken out of the hospital and placed into schools to help educators understand how students view the control they have over their destiny.

The correlations among the three scales for psychotic-neurotic and normal persons indicate similar results. The powerful People and Chance scales moderately correlated with each other ($r = .54$, $p < .01$). These were both negligibly related to the Internal scale ($r = .04$ and $.03$). The powerful People and Chance scales reflect a belief in a nonpersonal control orientation. Below are examples of these three aspects of control:

1. Internal: Whether or not I get to be a leader depends mostly on my ability.
2. People: I feel like what happens in my life is mostly determined by powerful other people.
3. Chance: To a great extent my life is controlled by accidental happenings.

Research Procedures

The vocational agriculture teachers were contacted at McCombs Junior High School, Des Moines, Iowa, to determine if their program of study could be used in conducting this research. Upon a visitation to their department, it was decided that the S.A.L.T. method of instruction could be implemented in the ninth grade sections of agriculture. At this school, four sections of vocational agriculture were conducted, each being 80 minutes in length. This did pose a problem for the study, since daily classes taught by the S.A.L.T. method are typically shorter than this. After having consulted with Dr. Donald Schuster, Iowa State University, the decision was made to continue with the plans for utilizing the S.A.L.T. method of instruction at the school. A meeting was then held with the executive coordinator of McCombs Junior High School, Mr.

Wendell Miskimins, to seek his approval for implementing the study. Also attending this meeting was Dr. Bennie L. Byler of Iowa State University and the vocational agriculture teacher at McCombs Junior High School. At this meeting, plans concerning the research procedures were discussed. Final agreement was reached by all parties, and the research was approved for implementation at the discretion of the researcher.

Before the research study was initiated, parental consent forms were given to the vocational agriculture teacher to distribute to the sections of vocational agriculture involved in the study. The students took the forms to their parents, had the forms signed, and the students brought them back to the school. Having received the parental or guardian approval, pretesting began.

On September 28, 1976, pretesting began with the administering of the *Agribusiness Achievement Test*. The following day, the students were given the *Brooks' Student Questionnaire* and the *Levenson Internal, People, and Chance Scales*. The following twenty school days were spent instructing the two agriculture classes in plant and soil science using the S.A.L.T. method of instruction and the conventional method. The classes taught by these two methods comprised the experimental treatment group and the control group respectively.

The experimental treatment group, which was taught by the researcher, met Monday through Friday at 9:40 a.m. At that time, students came into the classroom and absences were checked. Next, students went through a period of physical exercises, mainly muscle tensing and relaxing. Students then listened to soft music in a mind calming session. After 35 to 40 minutes of active class participation by the students, they listened to soft music in another session of mind calming. After 20 minutes of passive learning on the part of the students, the researcher summarized the daily lesson for the students, while they again listened to soft music. The class was then dismissed.

The control group also received 80 minutes of instruction, but without the physical exercises and mind calming sessions. The instructor used various components of the conventional method of teaching throughout all of his classes.

On October 28, 1976, the students were given posttests on all three instruments of evaluation, thereby completing the study at McCombs Junior High School.

Because of the difficulty of finding a school with two sections of agriculture in one grade level that was within the logistical limitations, it was decided to use the McCombs Junior High School control group as the only control group for this study, and identify another school that would permit the treatment to be administered to their ninth grade agricultural class.

The vocational agriculture instructor at Southeast Polk Junior High School in Runnels, Iowa, was contacted concerning this research study. His ninth grade class had received no prior instruction in plant and soil science, as was the case at McCombs Junior High School. Upon a visitation to the school, it was learned that only one ninth grade class with an enrollment of only nine students was available for the study. It was decided to continue with the effort of securing the ninth grade class at Southeast Polk Junior High School. Administrative approval was acquired from the principal and the vocational agriculture instructor, Mr. James Appleget.

Before the research study was initiated at Southeast Polk, parental consent forms were distributed to the ninth grade section of vocational agriculture students involved in the study. The forms were signed by the

students' parents or guardians and were brought back to class by the students. Having received the parental or guardian approval, pretesting began.

On January 6, 1977, pretesting began with the administering of the *Agribusiness Achievement Test*. The *Brooks' Student Questionnaire* and the *Levenson Internal, People,* and *Chance Scales* were administered on the following day. The next 20 school days were spent instructing the vocational agriculture class in plant and soil science using the S.A.L.T. method of instruction. The class was taught in the same manner as was the experimental treatment group at McCombs Junior High School, with the exception of no mind calming session in the middle of the class period because of the short class time of fifty minutes. On February 16, 1977, the students were given posttests consisting of the *Agribusiness Achievement Test*, while the *Brooks Student Questionnaire* and the *Levenson Internal, Person, and Chance Scales* were administered on the next day, thereby completing the study at Southeast Polk Junior High School.

Analysis of Data

Data from the pretest and posttest instruments were tabulated, scored, and punched on IBM cards for computer analysis. The data from the testing instruments were analyzed utilizing the computer facilities at the Computation Center, Iowa State University, Ames, Iowa. The computer programs used in the statistical analyses were either developed by Dr. Donald Schuster at Iowa State University or were conventional programs from the SAS (Statistical Analysis System) at Iowa State University. The statistical analyses of the data consisted of the use of the analysis of covariance using the pretest score as the covariate.

Findings

Introduction

This study was conducted to evaluate experimentally the effectiveness of the S.A.L.T. method of instruction utilized in teaching plant and soil science, by gathering information concerning the students' achievement, locus of control, and attitude toward this method of instruction. The findings of this investigation were based upon the results obtained by collecting and analyzing data from 45 students enrolled in the vocational agriculture departments of McCombs Junior High School and Southeast Polk Junior High School during the fall semester of 1976 and the winter semester of 1977.

Analysis of Raw Data

In an attempt to develop trends and relationships of the data, an analysis of the raw data was made between the control and experimen-

tal treatment groups. The raw data analysis may give some indications of factors attributable to the success or failure of the S.A.L.T. method of instruction in the areas of achievement, control, and attitude.

In the tables that will follow, the control and experimental treatment groups will be listed as follows:

1. Control Group (fifth class period at McCombs--taught by their regular instructor),
2. S.A.L.T. 1 Group (first class period at McCombs--taught by the researcher), and
3. S.A.L.T. 2 Group (third class period at Southeast Polk--taught by the researcher).

In an effort to find differences between the conventional methods of teaching and the S.A.L.T. method, it was decided to delete the S.A.L.T. 2 Group from the statistical analysis and view differences between the Control Group and the S.A.L.T. 1 Group. The S.A.L.T. 1 Group and the Control Group were different sections of vocational agriculture at the same school with students having similar academic and socio-economic backgrounds. The S.A.L.T. 2 Group came from a different school and different teacher. The procedure for this analysis was to analyze the data for the Control Group and the S.A.L.T. 1 Group, using the analysis of covariance to find if any significant differences existed. The data for this study are found in tables 1 through 14.

Information reported in Table 1 shows no significant differences in the ANACOVA summary for the effect of treatment on posttest Agribusiness Achievement Test scores. The pretest F-ratio of 18.88 is significant at the .0001 level of probability, revealing that students who made high pretest scores also made high posttest scores. The treatment F-ratio was not found to be significant. The degrees of freedom in the Error column are reduced from those of the analyses comparing three groups due to the fewer number of students.

Table 1. ANCOVA summary for the effects of pretest scores and treatment on posttest Agribusiness Achievement Test scores

Source of Variation	Mean Square	Degrees of freedom	F-ratio
Pretest	305.62	1	18.88****
Treatment	0.01	1	0.00
Error	16.19	33	

**** Significant at the .0001 level of probability

Data in Table 2 show the mean prettest, posttest, adjusted posttest, and gain scores for the Control Group and the S.A.L.T. 1 Group. The posttest showed gains over the pretest for both groups. The adjusted

posttest score for the Control Group was 0.63 points higher than the raw posttest score, while the adjusted posttest score for the S.A.L.T. 1 Group was 0.79 points lower than its raw posttest score.

Table 2. Mean pretest, posttest, adjusted posttest, and gain scores for the Agribusiness Achievement Test

Group	Raw pretest score	Raw posttest score	Adjusted posttest score	Gain score
Control (N= 20)	14.30	16.55	17.18	2.25
S.A.L.T. 1 (N= 16)	16.75	17.94	17.15	1.19
Total Mean	15.53	17.25	17.17	1.72

Table 3 indicates the ANCOVA summary for the effects of pretest scores and treatment on posttest Levenson Internal Test scores when the Control Group and S.A.L.T. 1 Group are compared. An F-ratio of 15.62, significant at the .0001 level of probability, was identified for the relationship between students' pretest and posttest scores. An F-ratio of 6.37, significant the .01 level of probability was identified between the treatment groups. The S.A.L.T. 1 group average was significantly greater than the Control Group.

Table 3. ANCOVA summary for the effects of pretest scores and treatment on posttest Levenson Internal scores

Source of variation	Mean square	Degrees of freedom	F-ratio
Pretest	318.16	1	15.62****
Treatment	129.77	1	6.37*
Error	20.37	32	

*Significant at the .05 level of probability.
****Significant at the .0001 level of probability.

Table 4 indicates the mean pretest, posttest, adjusted posttest, and gain scores for the two treatment groups. The test scores for the Control Group decreased from 34.95 to 33.45, while the scores for the S.A.L.T. 1 Group increased from 36.53 to 38.27. The adjusted posttest scores for both groups were within .50 points of the raw posttest scores. The S.A.L.T. 1 Group had an adjusted posttest score that was 3.93 points higher than the score for the Control Group. A high score meant the students felt in control of their destiny.

Table 4. Mean pretest, posttest, adjusted posttest, and gain Scores for the Levenson Internal Test

Group	Raw pretest score	Raw posttest score	Adjusted posttest score	Gain score
Control (N= 20)	34.95	33.45	33.83	-1.50
S.A.L.T. 1 (N= 15)	36.53	38.27	379.76	1.74
Total Mean	35.74	35.86	35.80	0.12

Information concerning the ANCOVA summary for the effects of pretest scores and treatment on posttest Levenson People scores is located in Table 5. The pretest F-ratio of 12.78 shows significance at the .0001 level of probability. The treatment F-ratio of 0.45 was not significant.

Table 5. ANCOVA summary for the effects of pretest scores and treatment on posttest Levenson People scores

Source of variation	Mean square	Degrees of freedom	F-ratio
Pretest	403.27	1	12.78****
Treatment	14.45	1	0.45
Error	31.55	32	

****Significant at the .001 level of probability.

Table 6 shows the mean pretest, posttest, adjusted posttest, and gain scores for the two treatment groups. The raw average posttest score fell 3.20 points from the pretest for the Control Group, while the raw posttest score fell 1.40 points from the pretest for the S.A.L.T. 1 Group. The pretest scores in this study were quite low. The adjusted posttest scores were similar to the scores of the raw posttests, varying only slightly.

Table 6. Mean pretest, posttest, adjusted posttest, and gain scores for the Levenson People Test

Group	Raw pretest score	Raw posttest score	Adjusted posttest score	Gain score
Control (N= 20)	26.10	22.90	22.70	-3.20
S.A.L.T. 1 (N= 15)	25.13	23.73	24.00	-1.40
Total Mean	25.62	23.32	23.35	-2.30

Table 7 reveals the ANCOVA summary effects of pretest scores and treatment on posttest Levenson Chance Test scores. The treatment F-ratio 0.15 was not significant, while the pretest F-ratio of 15.95 was significant at the .0001 level of probability.

Table 7. ANCOVA summary for the effects of pretest scores and treatment on posttest Levenson Chance scores

Source of variation	Mean square	Degrees of freedom	F-ratio
Pretest	355.58	1	15.95
Treatment	3.35	1	0.15
Error	22.30	32	

****Significant at the .0001 level of probability.

The mean pretest, posttest, adjusted posttest, and gain scores for the two treatment groups are listed in Table 8. The low raw pretest scores dropped even lower on the posttest results. The Control Group decreased from 25.40 to 24.10 (pretest to posttest), while the S.A.L.T. 1 Group decreased from 25.07 to 23.33 (pretest to posttest). The adjusted posttest scores in both groups were similar to the scores of the raw posttest, with the S.A.L.T. 1 Group's having the lower score of the two groups (23.41).

Table 8. Mean pretest, posttest, adjusted posttest, and gain scores for the Levenson Chance Test

Group	Raw pretest score	Raw posttest score	Adjusted posttest score	Gain score
Control (N= 20)	25.40	24.10	24.04	-1.30
S.A.L.T. 1 (N= 15)	25.07	23.33	23.41	-1.74
Total Mean	25.24	23.72	23.73	-1.52

Results of the Brooks' Student/Teacher Affective Relationship study in Table 9 show significance for both the pretest and treatment. The F-ratio for the pretest was 8.37, significant at the .001 level of probability. The treatment F-ratio was 3.90, significant at the .05 level of probability. The number of students taking the Brooks' tests increased from 35 to 36 over the Levenson tests, therefore increasing the degrees of freedom from 32 to 33. In the treatment effect the S.A.L.T. 1 Group average was significantly lower than the Control Group average.

Table 9. ANCOVA summary for the effects of pretest scores and treatment on posttest Brooks' Student/Teacher Affective Relationship scores

Source of variation	Mean square	Degrees of freedom	F-ratio
Pretest	230.99	1	8.37***
Treatment	107.67	1	3.90*
Error	27.61	33	

*Significant at the .05 level of probability.
***Significant at the .001 level of probability.

Data in Table 10 shows the mean pretest, posttest, adjusted posttest, and gain scores for the Brooks' Student/Teacher Affective Relationship study for the Control Group and S.A.L.T. 1 Group. The Control Group's gain score increased 0.27 points from 30.91 to 31.18, while the S.A.L.T. 1 Group's gain score decreased 3.36 points from 31.07 to 27.71. A low score means good student/teacher affective relations. The adjusted posttest scores were similar to the scores of the posttest, with a 3.54 point difference between the two groups.

Table 10. Mean pretest, posttest, adjusted posttest, and gain scores for the Brooks' Student/Teacher Affective Relationship Test

Group	Raw pretest score	Raw posttest score	Adjusted posttest score	Gain score
Control (N= 22)	30.91	31.18	31.21	0.27
S.A.L.T. 1 (N= 14)	31.07	27.71	27.67	-3.36
Total Mean	30.99	29.45	29.44	-1.55

Data as shown in Table 11 indicate the effects of pretest scores and treatment on posttest Brooks' School Stress Test scores for the Control Group and S.A.L.T. 1 Group comparison. In the analysis of covariance test an F-ratio of 36.25 for the pretest was obtained. This F-ratio was significant at the .0001 level of probability. An F-ratio of 0.49 for the treatment was also obtained. This F-ratio was not found to be significant.

Table 11. ANCOVA summary for the effects of pretest scores and treatment on posttest Brooks' School Stress scores

Source of variation	Mean square	Degrees of freedom	F-ratio
Pretest	648.29	1	36.25****
Treatment	8.78	1	0.49
Error	17.89	33	

****Significant at the .0001 level of probability.

Table 12 lists information pertaining to the mean pretest, posttest, adjusted posttest, and gain stress scores of the two treatment groups. The mean posttest scores remained relatively the same with the Control Group's showing a slight decrease from the pretest, while the S.A.L.T. 1 Group remained at 44.64. The adjusted posttest scores varied little from the posttest scores.

Table 12. Mean pretest, posttest, adjusted posttest, and gain scores for the Brooks' School Stress Test

Group	Raw pretest score	Raw posttest score	Adjusted posttest score	Gain score
Control (N= 22)	44.95	43.82	43.74	-1.13
S.A.L.T. 1 (N= 14)	44.64	44.64	44.76	0.00
Total Mean	44.79	44.23	44.25	-0.57

Information from Table 13 indicates the effects of pretest scores and treatment on posttest Brooks' Student/School Learning Orientation Test scores for the Control Group and S.A.L.T. 1 Group comparison. The pretest F-ratio of 18.04 is significant at the .0001 level of probability, while the treatment ratio of 6.22 is significant at the .01 level of probability. The adjusted posttest average for the S.A.L.T. 1 Group is significantly lower than the Control Group's average.

Table 13. ANCOVA summary for the effects of pretest scores and treatment on posttest Brooks' Student/School Learning Orientation Test scores

Source of variation	Mean square	Degrees of freedom	F-ratio
Pretest	322.74	1	18.04****
Treatment	111.20	1	6.22**
Error	17.89	33	

**Significant at the .01 level of probability.
****Significant at the .0001 level of probability.

Information in Table 14 reveals the mean pretest, posttest, adjusted posttest, and gain orientation scores for the two treatment groups. The control Group's posttest showed a gain of 1.23 from the pretest, while the S.A.L.T. 1 Group showed a decrease of 2.86 points from the pretest. A low score indicates a good orientation to school and learning. The adjusted posttest for the Control Group was slightly higher than the raw posttest score and that for the S.A.L.T. 1 Group was slightly lower than the posttest score.

Table 14. Mean pretest, posttest, adjusted posttest, and gain scores for the Brooks' Student/School Learning Orientation Test

Group	Raw pretest score	Raw posttest score	Adjusted posttest score	Gain score
Control (N= 22)	25.32	26.55	26.77	1.23
S.A.L.T. 1 (N= 14)	26.36	23.50	23.15	0.46
Total Mean	25.84	24.03	24.96	-0.82

Discussion

This investigation was conducted to determine if there were significant differences between the effectiveness of the conventional methods of instruction and the S.A.L.T. method of ins truction. The conventional methods of instruction used by the Control Group instructor were:

1. Lecture,
2. Single concept film,
3. Overhead transparency,
4. Field trip, and
5. Demonstration.

Along with the S.A.L.T. method of instruction, the S.A.L.T. Group's instructor included the use of:

1. Field trip, and
2. Demonstration.

Relative to this purpose, the findings as detailed in the previous section indicated that there were significant differences in measurable attitude changes and locus of control factors among the treatment groups. Data analyzed by the use of analysis of covariance for pretest and treatment revealed significant differences among treatment groups. This would lead the researcher to conclude that the S.A.L.T. method of instruction, under certain circumstances, may be a significantly more

effective teaching device than the conventional method of instruction in the areas of attitude and control of destiny. This conclusion is made on the basis of research done at the McCombs Junior High School, where significant differences were found in test results from the Levenson Internal, People, and Chance Scales and the Brooks' Student Questionnaire studies. No significant difference in achievement scores was found between the two methods of instruction.

Achievement

The *Agribusiness Achievement Test* was chosen for the research study due to its availability in a short period of time and also due to the very limited number of standardized agriculture tests available. No significant differences were found between the treatment groups possibly due to the test questions not reflecting subject matter covered in the research study. A typical final exam might have been better in this study. Therefore, only small gains were achieved by the students from the pretest to the posttest, none of which were significant.

Information from the analysis of covariance revealed that no significant differences in achievement existed in this study. Mean scores showed small differences in gains from pretest to posttest. The subject matter included in the treatment did not comprise all subject matter covered in the achievement test. Also, this was the first time that the vast majority of students had ever seen or heard of the subject matter dealing with agriculture, making it difficult for them to learn much of the material in the short period of four weeks. An important factor in the student achievement portion of the study may have been a time factor. The S.A.L.T. 1 Group was taught in 640 school minutes, the equivalent of what was taught to the Control Group in 1600 minutes. The S.A.L.T. 1 Group learned as much as the Control Group but in only 40 percent of the class time. Having been taught the subject matter so quickly, this may have resulted in the small gain scores of the S.A.L.T. 1 Group. The S.A.L.T. 2 Group was taught the same amount of material in 750 minutes, again possibly not allowing enough time for student comprehension of the material.

A practical difference in learning rate is important here. Since the adjusted posttest scores on the Agribusiness Test were only insignificantly and trivially different from each other, the achievement of all three groups was the same. But both S.A.L.T. groups learned this same amount in less than half the time taken by the Control Group. Thus, this is a practically significant difference in the classroom.

Attitude

The researcher believes that one reason for the significant S.A.L.T. 1 Group results concerned itself with the classroom atmosphere at McCombs Junior High School. The atmosphere of the classroom at the beginning of the research study seemed to be somewhat void of discipline. Since the S.A.L.T. method of instruction demands discipline for mind calming and passive sessions, students experienced a change in

attitude to conform to their new classroom situation. The Control Group experienced little change in attitude possibly because the students continued with their regular instructor and usual teaching methods. The S.A.L.T. 2 Group experienced little change in attitude possibly because discipline had been established by their instructor before the research study began. Therefore, the S.A.L.T. 1 Group at McCombs Junior High School made a significant change in attitude when compared with the other two treatment groups.

The student/teacher affective relationship test seemed to determine a popularity contest and was beneficial to the study. The Control Group gained 0.27 points from the pretest to the posttest, indicating a slight decay of the relationship. The S.A.L.T. 1 Group decreased in the gain score column, indicating an improved relationship between the instructor and the students. There is no question that those students wanted a different instructor from the one they had before the research began. These treatment group students liked the instructor, possibly due to the new method he was using.

An analysis of the Brooks' stress scores shows that S.A.L.T. 1 as a group had no stress loss or gain during the study. The Control Group's showing of more stress at the end of the study was due possibly to the instructor and his teaching methods. The students did not respond to his instruction. They may have felt stressed due to the lack of enthusiasm for his classes and the inefficient manner by which his classes were conducted. The S.A.L.T. 1 Group showed no increase or decrease throughout the study, while the other groups felt more. These students seemed to trust the researcher and his method of teaching. It is difficult to trust one without the other.

The Brooks' orientation scale reveals that the S.A.L.T. 1 Group had a significantly greater interest in school than did the Control Group. This test shows the eagerness of student's wanting to learn. The Control Group's lack of interest stems from their possible disinterest in their instructor and his methods of instruction. The S.A.L.T. 1 Group is different. These students knew that they were learning at an accelerated rate and seemed to trust their instructor and to like the S.A.L.T. method of instruction.

Control

The researcher believes the primary reason for the significant S.A.L.T. 1 Group results concerning locus of control factors deals primarily with the leadership capability of their instructor. The S.A.L.T. 1 Group had little leadership exhibited to them by their instructor prior to the beginning of the research study. Thus, the lack of leadership promoted insecurity and self-doubt. The S.A.L.T. method of instruction, with its 'dynamic' teaching techniques brought about a change in the S.A.L.T. 1 Group that instilled them with more self-confidence. There was little change in the Control Group students because this lack of leadership continued.

The Levenson tests examined the student's control over destiny, either by self, others, or chance. On the Internal, or self-control scale, the S.A.L.T. group felt that they had more control over their own destiny at the end of the research. Besides the leadership factors, this gain may possibly be due to a better self-image of themselves. The S.A.L.T. method of instruction includes the praising of students for good work. This researcher did so when it was warranted. When students are

rewarded for good work, they have a better self-image, one of accomplishment. The instructor of the Control Group possibly did not praise the good work of his students often, therefore not increasing the self-image of his students.

In a study of the Levenson scale concerned with the control that powerful other people have over the students, the S.A.L.T. 1 and Control Group students felt that power of other people lessened insignificantly as a controlling factor in their destiny. One reason for this may have been the fact that school had only begun six weeks prior to the beginning of this study. The students may have felt inhibited at the beginning of the study, but by its conclusion, they had adjusted to the inhibiting powers of their teachers.

In the analysis of chance factors controlling student destiny, both the S.A.L.T. 1 and the Control Group felt an insignificant lessening of these chance factors. The S.A.L.T. 1 and Control Group may have felt this lessening of chance because they were comfortable with the instructors that they had. The students in the S.A.L.T. 1 Group probably never questioned the researcher's presence as being chance. Since the Control Group never had the disruption due to a change in teachers, the chance factor concerning the researcher's presence had no effect on their chance scores.

Summary of Findings

Educators are continually faced with the challenge of providing a better vehicle for conveying knowledge from the instructor to the student in a more effective and efficient manner. Providing educational teaching methods that can meet the needs and interests of the student should continue to be a primary goal of educators today. If teachers possess the technical knowledge without the appropriate method to convey that knowledge, the students may be short-changed from their educational rights.

The primary purpose of this study was to determine if there is a significant difference in measurable classroom achievement, attitude, and control of destiny related to instruction in agronomic science among students taught by the conventional methods of instruction and the suggestive-accelerative learning and teaching methods of instruction.

The data from this investigation were analyzed using analysis of covariance. The pretest score of each student was used as a single covariate in analyzing differences between the pretest and posttest scores.

The major findings of this investigation may be summarized as follows:

1. No significant difference was found in measurable student achievement in agribusiness among the treatment groups attributable to the use of the S.A.L.T. method of instruction. However, the S.A.L.T. group had been taught in less than half of the time taken in the Control Group, indicating some acceleration of learning.

2. A significant ($p < .05$) difference was found between the adjusted posttest scores for the S.A.L.T. 1 Group vs. the Control group when measuring internal locus of control. This would indicate, under similar circumstances, the S.A.L.T. method of instruction can be used as a successful teaching method for changing certain locus of control factors in presenting agronomic science subject matter.

3. No significant difference was found in measurable students' locus of control by other people among the treatment groups attributable to the use of the S.A.L.T. method of instruction.

4. No significant difference was found in measurable student locus of control by chance factors among the treatment groups attributable to the use of the S.A.L.T. method of instruction.

5. A significant ($p < .05$) difference was found between the adjusted posttest scores for the S.A.L.T. 1 Group vs. the Control group when measuring the student/teacher affective relationship. This would indicate, under similar circumstances, the S.A.L.T. method of instruction can be used as a successful teaching method for improving certain affective attitudes in presenting agronomic science subject matter.

6. No significant difference was found between the adjusted posttest scores for the S.A.L.T. 1 Group and Control group on school stress.

7. A significant ($p < .01$) difference was found between the adjusted posttest scores for the S.A.L.T. 1 Group vs. the Control group on student/school learning orientation. This would indicate, under similar circumstances, the S.A.L.T. method of instruction can be used as a successful teaching method for improving certain interest attitudes in presenting agronomic science subject matter.

Recommendations for Further Studies

This research study found significant differences, under certain circumstances, between the suggestive-accelerated learning and teaching method of instruction and the conventional methods of instruction, but studies should be made on the use of the S.A.L.T. technique in other areas of agriculture. Experimentation with the S.A.L.T. method of instruction and other teaching methods would acquaint instructors with numerous techniques of instruction, hopefully guiding them to the best method for conveying knowledge to their students. Increased enthusiasm and interest of students may be the result of such experimentation. It would be to the advantage of instructors to try to implement different techniques of instruction to prevent stagnation of their program.

This researcher makes the following suggestions for further research:

1. The size and scope of this research study limits a researcher's ability to generalize about a larger population and different areas of agriculture. This study needs to be replicated using larger populations and subject matter areas.

2. The effect of the teacher variable needs to be held constant. Similar studies should be conducted with the same instructor for all treatment groups.

3. The class time factor should be held constant. Similar studies should be conducted with all treatment groups having the same minutes per class period.

4. The experiment should be conducted utilizing students who have similar backgrounds.

5. The study should be duplicated using groups that are randomly selected from all available students.

6. The study should be conducted using other instruments of evaluation.

7. Long term retention of the subject matter should be checked periodically after the conclusion of the study.

8. Other variables, such as music composition, breathing, and suggestion could be evaluated in a replication of this study.

9. The study should be conducted with an absentee analysis for data correlation with attitude and control evaluations.

10. The study should be duplicated using other or subsequent groups located at the same school.

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The Interaction of Trait Anxiety and Muscle Tension in Learning

D. J. Martin and D. H. Schuster

Iowa State University

Abstract

Work done recently with an accelerated learning technique called 'Suggestopaedia' has led to the conclusion that relaxation is conducive to learning. Work has also been done showing that heightened anxiety facilitates learning. The problem studied was how muscle tension (or relaxation) interacted with anxiety in the learning of rare English words and their definitions. It was hypothesized that the combination of both relaxation and low anxiety would lead to the best learning. Further, muscle relaxation should also have had the greatest effect on high anxiety subjects. College students (N= 56) from an introductory psychology class were pretested on the State-Trait Anxiety Index. Chronically tense students (N= 8) and chronically relaxed students (N= 8) were then trained to relax or tense the *frontalis* muscle with an analog EMG feedback mechanism. Low test anxiety subjects performed best when they were in an induced state of relaxation. Conversely, high test anxiety subjects learned better when they were in a state of induced muscle tension. There was no significant difference between these two best groups.

Introduction

The purpose of this study was to investigate the effects of tested anxiety and relaxation vs. trained anxiety and relaxation on learning. Recent work has been done by Lozanov (1971, 1975) with an accelerated learning technique he developed. This technique, which he calls 'Suggestopaedia', employs a combination of physical relaxation, mind calming and suggestion, among other techniques. Lozanov (1975) has obtained good results of accelerated learning in many foreign languages, typically French, Italian, German and English, as well as the teaching of all subjects in public school classes in Bulgaria. Schuster and Bordon (1976) have had similar results in this country with an adaptation of this technique.

'Suggestopaedia' as Americanized starts with a preparatory period that places the student in a receptive state; this stage includes physically relaxing exercises and mind calming techniques. Following this is a presentation stage in which the students maintain this receptive state and receive the information to be learned. After this is an active stage where the students act out the material and incorporate it into their repertoire.

The physical relaxation stage is important to the method because it removes tension from the students and helps make them more receptive. There have been many studies on the effect of muscle tension on learning (e.g., Courts, 1942; Levin, 1967; Meyer & Noble, 1958; Lovaas, 1960; Okaichi, 1970) but very few on relaxation. Pascal (1959) found that relaxation improved recall of paired-associates in subjects unselected for

anxiety. Wilson and Wilson (1970) found that subjects with high anxiety learned better with induced muscle tension (using a dynamometer) while low anxiety subjects scored better in a relaxed situation. Overall they found that the muscle tension group did better than the muscle relaxation group and that high and medium anxiety groups scored better than the low anxiety group. This seems to contradict the findings of several other studies that show that high anxiety subjects show impaired performance on complex learning tasks (e.g., Spence, 1958; Tecce, 1965; Denny, 1966; Spielberger & Smith, 1966). The purpose of this study was to determine the precise interaction of anxiety and muscle tension in learning vocabulary.

Wilson and Wilson (1970) pointed to a possible problem with many of these studies in that the subjects had too little time (or training) to get actually relaxed or tense. In this study, the subjects were trained on an analog electromyogram (EMG) feedback mechanism as suggested by Budzynski and Stoyva (1969). This was done for both the relaxation and tension groups.

The bulk of the research literature seems to indicate that high anxiety is the least conducive to learning. Also, the work being done with suggestopaedia leads to the conclusion that relaxation is advantageous to learning. Therefore, we predicted that the low test anxiety, EMG-relaxed subjects would score the best and the high-test anxiety, EMG-tensed subjects the worst. We expected relaxation to have the most effect on high anxiety subjects.

Method

For the first part of this study, 56 subjects (29 males and 27 females) from beginning psychology classes at Iowa State University, were given the State-Trait Anxiety Index (STAI) (Spielbarger, Gorsuch & Lushene, 1968). On the basis of the trait anxiety scores, subjects were placed into experimental groups. The four males and four females who scored the highest were placed in the high test-anxiety group while the four females and four males who scored the lowest were placed in the low test-anxiety group.

All of the selected subjects went through three different sessions. The first was a pretest session, the second was a training session, and the third was a posttest. The subjects were randomly placed into muscle tension and relaxation groups so that there were two low anxiety males and females and two high anxiety males and females in both groups. The subjects were run two at a time so that both low anxiety relaxation females were run together.

All subjects were treated identically in the first session. A pretest of 25 rare English words was administered to the subjects. The words were read aloud at 5 sec. intervals, and then the subjects were given an additional 3 min. to study the list. Following this, the subjects were given an answer sheet that gave the words as stimuli and subjects were to give the definition. The subjects then spent a short session with the feedback monitor to acquaint them with it.

The next two sessions were run similarly for all groups but differed as to the direction of muscle biofeedback training. The second trial was spent entirely in training on the EMG biofeedback apparatus. The electrodes were placed on the forehead so that activity in the *frontalis* muscle could be monitored. The subjects were instructed to increase the

clicking (in the EMG-tension group) or to decrease the clicking (in the EMG-relaxation group). The subjects then went through three training periods. These entailed 10 min. of attempted relaxation/tension followed by a 5 min. rest period. All of the subjects were able to change their muscle tension level in the desired direction. The relaxation group cut their muscle tension by more than half while the tension group was able to more than double their resting level.

The final session started with a 10 min. relaxation/tension period during which the subjects were given EMG feedback. Immediately following this, the subjects were presented a second list of rare English words. This was administered in the same way as the first list with one exception. The answer sheet for this test had 12 of the words and 13 of the definitions listed. The subjects were required to supply the appropriate definitions and words, respectively. The subjects were instructed to maintain their relaxed (or tense) muscle state during the learning and testing phases. They were also given feedback during both of these phases.

Following a 5 min. rest period the subjects had a 5 min. period of relaxation/tension. After this another list was administered in the same manner as the previous list. The answer sheet for this list had 12 definitions and 13 words as stimuli.

Results

The score for the pretest was the number of correct definitions minus the number of words previously known. The posttest score was the sum of the correct words and definitions on the two tests minus the number of previously known words. The independent variables were Sex of subject, Anxiety trait level and induced Tension/relaxation.

The analysis of variance (2 x 2 x 2) on the pretest scores showed a significant difference ($p < .05$) on both the Anxiety x Tension interaction and the Anxiety x Sex interaction. Therefore, analysis of covariance was done on the posttest scores using the pretest scores as a covariate. This resulted in a significant interaction ($p < .05$) of Anxiety and Tension; see Figure 1.

There was very little difference in the posttest means of male vs. female, low anxiety vs. high anxiety, and relaxation vs. tension classifications.

Discussion

The data for this experiment support the findings of Wilson and Wilson (1970). The low test-anxiety, EMG-relaxed and high test-anxiety, EMG-tensed groups both performed significantly better than the other two groups. Though a sampling error produced a significant difference on the pretest, this difference was in the opposite direction on the posttest.

The findings here contradict the idea that relaxation aids everyone in learning. This means that the general success that has been achieved with suggestopaedia is due to some other factor or combination of factors than just the relaxation of the students. If low anxiety people cor-

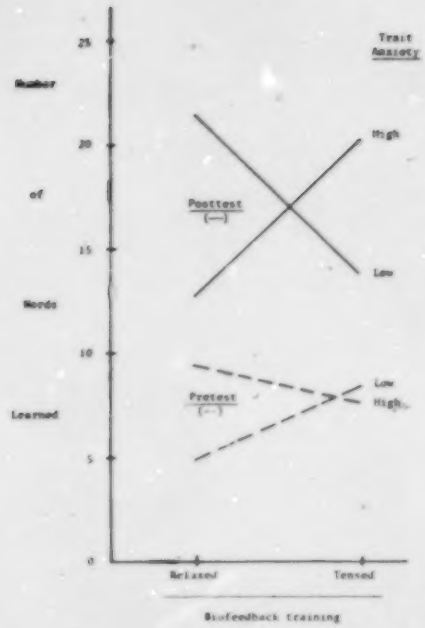

Fig. 1 - The effects of trait anxiety and biofeedback induced tension vs. relaxation on number of words learned.

respondingly have low muscle tension, it would seem that people learn better when they are in a state congruent with their normal muscle tension state. This could mean that a technique such as suggestopaedia might be less effective with high anxiety students than it could be.

Because there were no significant differences between the performance of the different anxiety level or the muscle tension level groups, no one technique would be the best for everyone for learning. This would also mean that no group would be capable of better learning on the basis of its anxiety level or muscle tension state than any other group.

It should be noted that one of the females in the low-anxiety tension group complained of headaches following the experiment. By tensing the *frontalis* muscle a tension headache could have inadvertently been produced. This subject was given an additional session for relaxation training, after which the subject had no further complaints about her headaches. (See Budzynski, Stoyva & Adler, 1970.)

Though many studies appear to show that the interaction of trait-anxiety and muscle tension is not that important in learning, more studies are needed to determine exactly how important this relationship is in the total learning process.

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Student Attitudes Toward Music Used as an Integral Part of Remedial Reading Instruction based on the Lozanov Method

John W. Rhodes
Georgia Department of Education
Atlanta, Georgia

Abstract

A study was made to determine if repeated hearings of musical selections used in the context of the non-attentive portions of a remedial reading class (an adaptation of the Lozanov method) would affect students' attitudes toward the music used. No significant differences were shown between pretest and posttest scores on a music attitude instrument. Generally positive student attitudes toward the musical selections used were reported, however.

Introduction

This study was a parallel study in a project in which the Lozanov method of language instruction was adapted for use in remedial reading instruction (Prichard & Taylor, 1976). Basically, this method, variously known as 'the Lozanov Method,' 'Cue-Reinforced learning,' 'Suggestology,' and 'Suggestopedia,' involves the elements of '(1) presenting lesson matter in both attentive and non-attentive states (alternating levels of awareness for presentation of the same material) and (2) attempting to create a relaxed, non-defensive atmosphere in which both external and internal distractions to learning are minimized' (Prichard & Taylor, 1976, p. 108). For a more comprehensive description of the Lozanov method, the reader is referred to Bancroft (1976).

In application of the Lozanov method, the presentation of lesson material in non-attentive states involves the teacher's reading the lesson material over a musical background according to a strict pattern of rhythm and intonation. It was from this aspect of the project that the present study was made.

The purpose of this study was to determine if repeated hearings of the musical selections used in the context of the non-attentive portions of the remedial reading class would affect the students' attitudes toward the music used. Change in student attitudes toward the music used was considered important not as much in the context of its relationship to reading improvement as in possible spinoffs and implications for music education, especially music appreciation. For the sake of data analysis, the null form of the hypothesis was assumed. It was hypothesized that there would be no significant differences in student attitude toward the three musical selections used as reflected by scores on a music attitude scale. A .05 level of significance was selected for this study.

Methodology

Selection of Sample

The sample used in this study was the sample selected for use in the remedial reading study at Huntley Hills Elementary School, DeKalb County, Georgia, as described by Prichard & Taylor (1976): 'Students eligible for participation in the program were defined as those for whom the average of their Spache Oral and Silent reading subtest scores was two years less than their Spache listening potential (expectancy) scores' (p. 108). Twenty students were randomly selected from the eligible group to participate in the Lozanov adaptation program. Those were the students used as the sample in this study. The ages of students in the sample ranged from seven to thirteen.

Experimental Design

The design used in this study was the quasi-experimental design, pretest-treatment-posttest. A control group was not used in the Prichard & Taylor (1976) study. Since the present study used the same sample of students, a control group was not used in this study.

Selection and Preparation of Music

The writer, in his position as Music Consultant for the Georgia Department of Education, was asked to assist in the selection and preparation of music for the program. Music was selected to meet the requirements of the non-attentive phase instructional methods of the Lozanov technique (Bancroft, 1976). Basically, these requirements, as identified by Bancroft (1976), were that the music have a very distinct, steady rhythm, that it be relatively slow (60 beats per minute, approximately), that it have a duple meter, and that it primarily reflect one mood throughout. Slow movements of baroque concerti were selected as most nearly fitting these requirements.

Enough appropriate music was selected in order that three tapes of thirty minutes duration each could be prepared. Primarily used were works of Bach, Telemann, and Vivaldi. To serve as cues for breathing and for presentation of lesson material, clicks were added at four-beat intervals when the tapes for class use were prepared.

Testing Procedures

Students were pretested and posttested using a simple instrument developed by the writer to assess student attitude to a musical selection the student had just heard (See Appendix ...). The instrument consists of five questions to which the student responds in terms of relative positive or negative feelings toward the musical selection heard. A raw score of 25 on the instrument represents a strongly positive attitude toward the musical selection; a score of 20, a positive attitude; a score of 15, a neutral attitude; a score of 10, a negative attitude; and a score of 5, a strongly negative attitude. The instrument was administered individually to each student by the teacher in order that reading ability would not be a factor influencing the student's response. A one minute excerpt of a musical selection from each of the three tapes was played (less the cueing device). After each selection was played, the students responded to the attitude instrument. In all, three musical selections were heard and responded to. In order to control for response bias among selections, testing was performed on successive days rather than at one sitting. Posttesting procedures were the same as pretesting procedures. Post-

testing was conducted ten weeks after pretesting. The three selections to which the students responded (1 minute excerpts) were:

1. Bach, J. S. *Concerto for 3 Violins and Orchestra* (D Major). Adagio.

2. Telemann, G. P. *Trumpet Concerto in D Major*. Adagio.

3. Bach, J. S. *Suite in G Minor for Lute*. Sarabande.

Treatment

The treatment considered in this study was the repeated hearing of the music previously described, as used in the non-attentive portion of the 12 week adaptation of the Lozanov approach to remedial reading instruction. The three thirty minute tapes were used alternately in order to minimize the danger of boredom. After going through exercises designed to induce relaxation and to enhance visualization, the lesson material was presented. The lesson material (vocabulary) was read by the teacher over the musical background in the following sequence.

1. First beat of measure (first click): pronounce word.

2. First beat of second measure (second click): spell word.

3. First beat of third measure (third click): use word in sentence.

This procedure was continued for the remaining material using different intonations as prescribed by the Lozanov technique. The breathing pattern of the students as well as the presentation of lesson material was cued to the pulse of the music being used.

Analysis and Results

Raw scores were computed for each student on the basis of weighted scores for responses to the test instrument. Six scores were generated for each student: scores for response to each of the three pretest selections and scores for response to each of the three posttest selections. Subjects were eliminated who did not have scores for all pretest and posttest administrations, yielding a final N of 14.

Raw data are presented in the following summary. A summary of student responses by question number and response choice is presented in Appendix B.

Description	*Mean*	*S.D.*
1. Group One (Pretest, Selection 1)	20.93	4.70
2. Group Two (Pretest, Selection 2)	21.14	4.05
3. Group Three (Pretest, Selection 3)	17.93	5.55
4. Group Four (Posttest, Selection 1)	17.64	6.20
5. Group Five (Posttest, Selection 2)	18.29	6.38
6. Group Six (Posttest, Selection 3)	15.93	7.26

A one-way analysis of variance was run on the six groups of data. No significant differences were detected among the groups.

Analysis of Variance Table

Source of Variation	DF	Sum of Squares	Mean Squares	F Ratio	Critical F Value*
Between	5	286.71	57.3422	1.711	2.33
Within	78	2614.58	33.5202		
Total	83	2901.29			

*p = .05

Had a significant F Ratio been obtained, Scheffe comparisons between the three pretest scores and the three posttest scores would have been computed to determine the presence of significant change in attitude between pretest and posttest administrations. Also, pairwise comparison would have been made between all pairwise combinations using the Tukey Comparison Procedure to determine the presence of significant difference between attitudes to different musical selections. These operations were not performed due to lack of an overall significant F Ratio.

Conclusions and Observations

On the basis of the data analysis it was concluded that there was not sufficient evidence on which to reject either of the null hypotheses. From the data generated in this study, it appeared that repeated hearing of musical selections in the context of the non-attentive portions of the Lozanov method did not significantly alter the students' attitude toward the music being used. An interesting observation is that although no significant differences among groups of scores were detected, mean scores on all administrations of the instrument indicated a positive attitude toward the music heard.

Although no firm conclusions can be drawn from this study in terms of implications for music education, consideration should be given to the use of relaxed, non-attentive states in music listening situations.

These findings should be considered tentative, at best. The small sample size involved in the study gave a design powerful enough to detect only large differences. The lack of a control group made it difficult to control for some factors affecting the internal validity of the study. Specifically, the effects of history, maturation, testing effects, and statistical regression could not be controlled. In some instances student responses to the instrument showed evidence of the operation of a response set. Future research along these lines appears to be appropriate and should take into consideration the factors identified above.

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APPENDIX A

ATTITUDE INSTRUMENT USED IN STUDY

Name
Date

REACTIONS TO MUSIC SELECTION

Please give your honest reaction to the piece of music you just heard. There are no *right* or *wrong* answers. We are just interested in *your own* honest reactions and feelings. For each question, make a mark (X) before the statement that most closely expresses your reaction.

1. How well did you like the piece of music you just heard?
   - A. I did not like it at all.
   - B. I did not like it.
   - C. I neither liked it nor disliked it.
   - D. I liked it.
   - E. I liked it a lot.

2. How would you feel about hearing more music like that you just heard?

A. Under no condition would I like to hear more.
B. I probably would not like to hear more.
C. I do not care whether I do or do not.
D. I probably would like to hear more.
E. I would really like to hear a lot more.

3. If you had a choice, would you choose to listen to more music like that you just heard?

A. I would *never* choose to listen to more.
B. I probably would not choose to listen to more.
C. I might or I might not.
D. I probably would choose to listen to more.
E. I definitely would choose to listen to more.

4. How would you like to learn more about the kind of music you just heard?

A. There is no way I would want to learn more about it.
B. I probably would not like to learn more about it.
C. I do not care whether I do or do not.
D. I probably would like to learn more about it.
E. I really want to learn more about it.

5. How would you rate the music you just heard?

A. Real bad.
B. Bad.
C. I can not rate it as either bad or good.
D. Good.
E. Real good.

APPENDIX B

NUMBER OF STUDENT RESPONSES BY QUESTION AND RESPONSE CHOICE

Question:		1	2	3	4	5
PRETEST						
Musical Selection #1						
Response Choice:	A	0	0	1	1	2
	B	0	1	0	0	0
	C	1	0	3	1	1
	D	5	6	5	6	4
	E	8	7	5	6	7
Musical Selection #2						
Response Choice:	A	0	0	1	1	0
	B	0	1	1	0	1
	C	1	1	2	1	1
	D	7	6	2	5	5
	E	6	6	8	7	7
Musical Selection #3						
Response Choice:	A	2	2	3	2	1
	B	0	2	2	1	1
	C	2	2	4	2	1
	D	4	4	2	5	4
	E	6	4	3	4	7

Question:		1	2	3	4	5
POSTTEST						
Musical Selection #1						
Response Choice:	A	2	0	2	1	1
	B	1	4	2	2	1
	C	3	3	4	6	5
	D	3	2	1	0	1
	E	5	5	5	5	6
Musical Selection #2						
Response Choice:	A	1	1	1	1	1
	B	2	2	2	2	2
	C	2	3	4	2	4
	D	2	3	3	3	3
	E	7	5	4	6	4
Musical Selection #3						
Response Choice:	A	3	3	2	3	2
	B	1	2	3	2	4
	C	3	4	3	5	4
	D	1	0	0	0	0
	E	6	5	6	4	4

Abstracts from the Bulgarian journal, *Suggestology and Suggestopedia*, 1975.

Lozanov, G. Suggestopedia in primary schools. *Suggestology and Suggestopedia*, 1975, 1(2), 1-14.

This article serves two purposes, discussion of the principles and methods of suggestology as applied to children in elementary school and the application of this method to teaching beginning reading and mathematics in elementary schools in Bulgaria in a controlled experimental fashion.

There is a difference in applying the Lozanov teaching style to children as compared with adults: children have not had the full force of society's desuggestive influences applied to them so as to lower their memory skills. Accordingly, much of the suggestions to counter the adult typical desuggestive learning norm can be dispensed with.

Lozanov discussed several typical classroom violations against basic suggestology principles. These are as follows:

1. The mind acts as a fundamental unit; that is, it operates simultaneously at cortical conscious and subcortical subconscious levels. Teachers violate this basic principle in practice by teaching material only at a cognitive level to appeal to cortical processes and then discuss the material secondly in an abstract process to appeal to cortical brain processes.

2. Both analysis and synthesis occur simultaneously in the brain. Teachers violate this typically by studying the elements of a process in isolation and later combine them. Or teachers may do the reverse to study the whole process without considering the elements as part of the whole.

3. Communication is carried on simultaneously at conscious and unconscious levels. Teachers violate this typically by trying to communicate only at the conscious level and what they say unwittingly at an unconscious level violates their conscious communication.

4. The theory of suggestology is that long term memory, automated mental processes, much of the intellect and personality itself are functions of unconscious mental processes. The suggestological principles that apply to learning are that it can be done with joy and free from tension, that there is a unity of conscious and unconscious processes in learning and that there is a suggestive link to combine the conscious and unconscious levels. In practice these principles are implemented by psychological and artistic means. The psychological means are that the teacher utilizes emotional and peripheral stimuli in an integrated fashion with his or her conscious level messages. The teacher stuffs much more material than is normally thought possible into typical lesson plans so as to overwhelm a student's usually operating desuggestive barriers as to what he or she can learn.

Kolarova, D., Sharankov, H., Kardashev, G. & Buchvarova, Z. Scologeny in students and the suggestopedic process of instruction. *Suggestology and Suggestopedia*, 1975, 1(2), 14-21.

This research study focused on improving the mental health of neurotic university students who were seriously bothered with scologeny or fear of failing in vocational or academic studies. Two outpatient groups were used, one of which was given suggestopedic instruction in foreign languages and rarely combined with the application of medicines. The other group was given systematic drug treatment with tranquilizing and supportive properties in the same sort of atmosphere. The group given the suggestopedic psychotherapy showed a stronger tendency toward stabilization.

The bulk of the paper dealt with the analyses made of 32 students being given remedial treatment with suggestopedic instruction in foreign language. A common malady of both groups of students was that of an indifferent attitude toward their university endeavors which they felt were torture. All 32 experimental students suffered from neurasthenia with the dominant factors being fear and dread of examinations. The suggestopedic language course took 22 days, 4 hours a day in groups of 8-12 students.

1. As a psychotherapeutic method, suggestopedic instruction in foreign languages has a favorable influence on the course of neurotic disorders (including scologenic ones) in university students.

2. Suggestopedic instruction in foreign languages is clearly very suitable and easily reliable for this vocational group form of recuperative and re-socializing psychotherapy.

3. Our modest experience including suggestopedic instruction in foreign languages among the measures used to treat scologenic neurotic disorders with university students gives us grounds to undertake wider-ranging experimentation in this field.

Balevski, P. & Ganevski, L. The volume of short-term memory at the beginning of the course and the proficiency of students learning foreign languages by the suggestopedic system. *Suggestology and Suggestopedia*, 1975, 1(2), 22-28.

This paper reports research on the volume of the short-term auditory memory of 197 students (100 men and 97 women) aged from 20-45 years who were attending suggestopedic foreign language courses. The same series of 15 words from one part of speech, nouns, adjectives, verbs, and invariable parts were used in early experiments with school children. All students were most successful in memorizing nouns first, then adjectives and verbs, and were poorest in memorizing adverbs and prepositions. Women correctly remembered slightly more words that men ($p < .05$). Adults remembered approximately 6-9% less material than did teenagers ($p < .01$).

It has been found that the percentage of the words correctly translated and the general performance of the adult students at the end of the course is related to the volume of their short-term memory, although there are also individual deviations from the general pattern. The memory level of the students attending the courses is an important factor, though not the only one determining the successful assimilation of a foreign language by the suggestopedic method.

A memory test to ascertain the initial level of the students attending suggestopedic courses can contribute towards the formation of groups whose members are relatively equal in the level of their memory capacity and towards facilitating an individualized approach towards the students possessing lower memory levels.

Novakov, A. The speech output of students in the initial stage of suggestopedic instruction and foreign languages. *Suggestology and Suggestopedia*, 1975, 1(2), 28-35.

This study analyzed the cognitive psychological and linguistic speech output of students learning a foreign language (French, German, or English for Bulgarian students). The aim was to reveal the characteristics of the suggestive process for students learning a foreign language. For the second class lesson, students were given a 'hotel' situation. Students had to book a room, talk about passports, converse about the accommodations and about being shown to the room. These microthemes were analyzed both by the type of information, such as mutual information, solicitation, insulting, etc., and their corresponding frequency, as well as by the types of transformation utilized in the dialogue (abridged or pooled sentences ranging to partially transformed sentences and fully transformed sentences as compared to the standard ones covered in class).

The two most important speech categories were mutual exchange of information and one-sided presentation of information, accounting for 43% of all speech output. This supports the suggestopedic interpretation in that the purposefulness and argumentativeness of the speech output are essential characteristics. Accordingly, the attention and emphasis of the students are on social communicative interrelations in the language practice dialogue rather than on the mere physical description of the environment for the linguistic shaping process itself. The natural pattern of speech communication between dialogue partners is the second characteristic of speech output in the suggestology system. There was a high percentage of new thoughts (89%) and of newly formed sentences (93%), that did not exist in the immediately previous class materials. Thus speech output of students with the suggestopedic approach is highly creative and students generate their own ideas in speech to express their own ego in that the better the lesson is arranged from a suggestopedic point of view, and the earlier it is done, that the higher the communicative level is consequently along with a greater acceleration of learning. Thus suggestopedic instruction definitely is not a mere mechanical repetition of classroom materials nor an unconscious regurgitation of the same.

Noncheva, R. Dynamics of the mental capacities of students in the course of suggestopedic instruction in foreign languages. *Suggestology and Suggestopedia*, 1974, 1(2), 36-41.

This study undertook to estimate the increase in mental capacity of students as a result of having completed a suggestopedic course of instruction in a foreign language. The criterion test consisted of doing mental arithmetic and the letter substitution correction test. Both tests were given as pretest and posttest. The typical suggestopedic course of instruction lasted 20-22 days, 4 hours a day.

1. At the end of the suggestopedic courses in foreign languages, students show higher speed and accuracy in their mental work than they do at the beginning of the courses. However, in the study, no separate control group was utilized to show that this effect is due solely to suggestopedic instruction rather that a possible test-retest improvement.

2. The changes in the working capacity in the course of suggestopedic instruction follow the same pattern in both men and women. Nevertheless, there are certain differences between men and women in the volume and accuracy of the work they do; men solve a greater number of problems with a higher degree of accuracy than women are able to do, while in the correction tests they work more accurately, although the volume of work done by them is smaller than that done by women.

Minkin, L. M. The linguistic aspect of suggestopaedy. *Suggestology and Suggestopedia*, 1975, 1(2), 42-47.

The writer discusses Lozanov's view that human communication proceeds on two phases, conscious and unconscious. Mood, modality, affirmation are typical elements in the language class that can be used in a positive integrated way to complement the content expressed by the teacher. These means constitute in part the second communicative (unconscious) plane and so exercise a suggestive effect on the listener. The discovery, systematizing and incorporation of these means into didactic dialogue are of great importance in language teaching.

Ganovski, L. The effect of some of the means of suggestion on the volume of short-term memory. *Suggestology and Suggestopedia*, 1975, 1(2), 48-51.

This study was conducted to investigate the effect of the suggestopedic method on learning different parts of speech as a function of suggestopedic training. Students were pretested and posttested after a 22-day course, 4 hours a day in suggestopedic learning of foreign language.

As is typical, short-term memory was greater for women than for men. When the words are reviewed with an intonational swing and soothing background music, verbs are learned 20% better and the number of adjectives learned increased by 51%. There were insignificant changes in the percentage of correctly rendered nouns and adverbs.

The effect of the course on short-term memory for school children was even more favorable. The average number of correctly translated verbs increased by 30% while the average number of correctly translated adjectives more than doubled.

1. The suggestopedic method of teaching foreign languages has a favorable effect on both the long-term and short-term memory of the students.

2. The method used to determine the value of short-term memory in relation to the principal parts of speech in the respective language can contribute to directing the attention of teachers to those parts of speech which are more difficult to learn, as well as to taking an individual approach with those students showing a lower level of memorization.

Mankovskii, N. B., Mashek, J. A. & Lisenjuk, V. P. Suggestibility in grown-ups and old people. *Suggestology and Suggestopedia*, 1975, 1(2), 52-57.

This study used an analysis of variance design to investigate the variables of age and the three levels in the Bakeev and Saffin Suggestibility test. Three groups of healthy people were investigated, 20 people from 18-25, 20 from 60-74, and the last 20 people from 75-96. The Bakeev and Saffin test has three components, suggestibility when told to write a word or phrase, to smell a smell in a tube of distilled water, and to sway in response to being told of proximity to an imagined precipice.

1. People in different age groups react to suggestion directed to different kinds of psychic activity in different ways.

2. Suggestion of word-mnestic activity can be better realized with grown-ups and old people. The relationship found to exist between a person's age and the suggestion of word-mnestic activity can be used to determine biological age.

3. Old people are more open to suggestive influence directed to the organoleptic determination of an oderiferous substance than are young people.

4. When suggesting activity requiring a greater association of ideas, a richer flight of imagination and a certain amount of fancy, people in the higher age groups show a decrease in the degree of their suggestibility.

Tanchev, F. The influence of suggestive elements in the translation of Belletristic works. *Suggestology and Suggestopedia*, 1975, 1(2), 58-62.

Following from the suggestology theory of Lozanov and from our own experimental results we find that in the translation of belletristic

(artistic, poetic) works that use must be made of appropriate means of expression, rhythm, intonation, emotional charge, peripherally suggested ideas, second-plane ideas and other means corresponding to the original. These must reflect not only the artistic reality, but also the suggestive atmosphere and the suggested emotional, aesthetic, and artistic effects which the author put into the original. If the translator lives up to the necessary requirements for adequate and suggested impact, the translation can exercise a considerable influence, one that to a great degree utilizes the reader's moral and ethical reserve capacities.